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DOMESTIC ENGINEERING

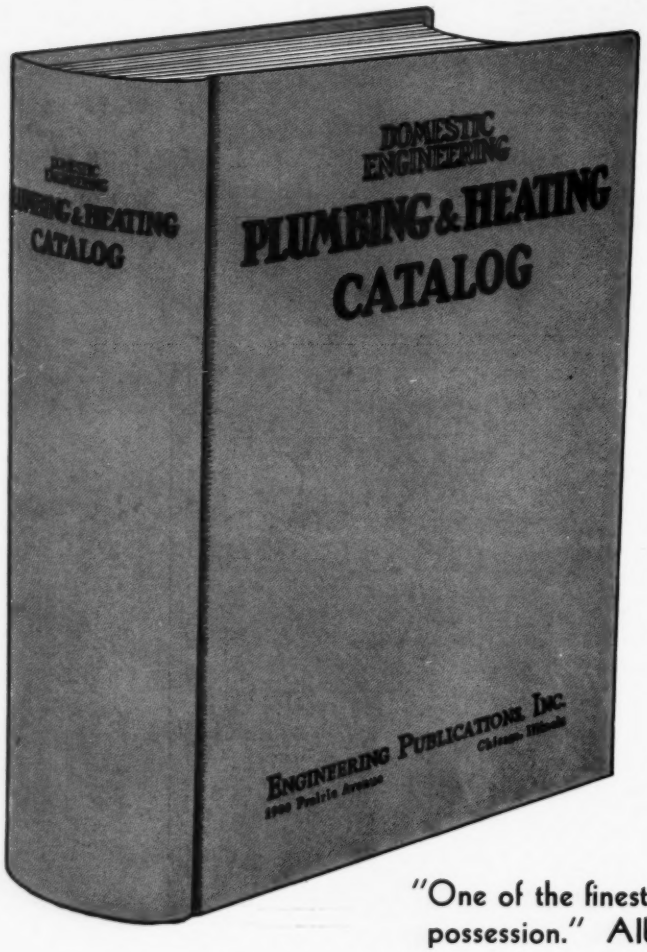
WORK FOR PLUMBING AND HEATING IN UTILITIES

Heat Office Building with Refrigerating Equipment

Plumbing for Telephone Buildings

FEBRUARY 6, 1932

Plumbing & Heating Contracting and Merchandising



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"One of the finest and most useful books we have in our possession." Albany, N. Y.

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These are a few of the hundreds of comments we have had from users of The Plumbing and Heating Catalog.

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PLUMBING & HEATING CATALOG

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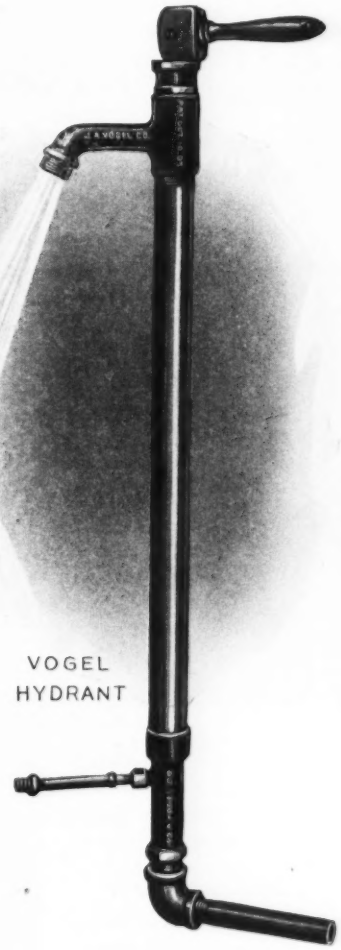
IN MOST cases you'll make a sale, and the extra profit that goes with it. A supply of water outside that will never freeze or get out of order is a convenience that most people appreciate, and the cost is small. So with practically no selling effort you can make an extra profit on every Vogel job. Try it the next time you are installing a Vogel Frost-Proof Closet.



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DOMESTIC ENGINEERING

Plumbing & Heating Contracting and Merchandising

Established 1889

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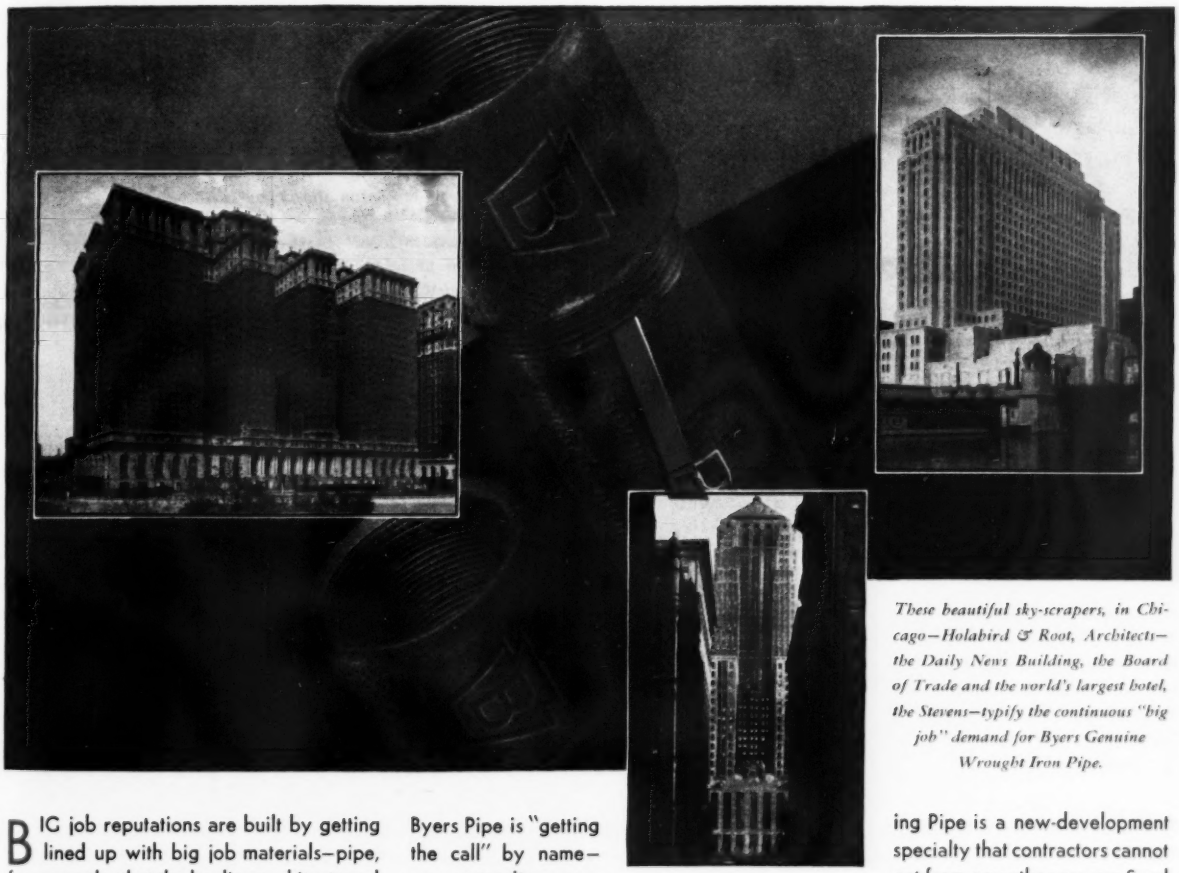
Build a "BIG JOB" Reputation with BYERS Pipe!



These beautiful sky-scrapers, in Chicago—Holabird & Root, Architects—the Daily News Building, the Board of Trade and the world's largest hotel, the Stevens—typify the continuous "big job" demand for Byers Genuine Wrought Iron Pipe.

BIG job reputations are built by getting lined up with big job materials—pipe, for example, that the leading architects and engineers demand.

That's why it is so important today for plumbing and heating contractors to know about the growing preference for Byers Pipe—on "big job" projects where materials are carefully selected.

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Byers Pipe today is the finest wrought iron this Company has produced in its 68 years of industry leadership. Byers Bending Pipe is a new-development specialty that contractors cannot get from any other source. Send for our Bending Pipe Bulletin—and get free, also, the Byers Pipe Threading instruction book which, according to many contractors, contains the most valuable, practical instruction on pipe threading that they have ever found. A. M. Byers Company, Pittsburgh, Pa. Established, 1864.

You'll like Byers Jobbers—Good stocks—quick deliveries — dependable service.

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STANDARD QUALITY FOR 68 YEARS — TODAY BETTER THAN EVER

Between Ourselves

THE latest engineering developments in the heating, ventilating and refrigerating field were discussed last week at the joint meeting of the American Society of Heating and Ventilating Engineers and the American Society of Refrigerating Engineers in Cleveland, Ohio. In this issue is a complete news report on the meeting, and also abstracts of several of the papers that were read. Later issues will contain more of this material.

Your Editor

"HEAT Office Building with Refrigerating Equipment"—the title of one of the most interesting pieces of reading matter we have run across in a long while, and appearing on Page 24—sounds like one of Mr. Ripley's famous "Believe It or Not" tales. But instead it's a technical article by Terry Mitchell, well-known heating and ventilating engineer, describing how the refrigerating equipment installed in a 13-story office building in Los Angeles, Calif., is used to heat the building as well as cool it. It is the first big installation of the system in America. The theory behind it all is that if a refrigerating machine can collect and remove the heat that leaks into a cold storage room, it should be possible for the same machine to collect heat from the outside air in cold weather.

PLUMBING requirements for the modern telephone building have now been standardized to a great extent. And, while each individual building has its own particular problems because of local conditions and local plumbing laws; nevertheless, the telephone companies have now reached a degree of efficiency where standards are being set up in the construction of their buildings which meet their particular requirements. The plumbing standards, of course, apply mainly to materials, types of fixtures, fittings, trimmings, etc. An article on page 28, by R. M. Starbuck, gives much helpful information on telephone building plumbing. Many of these principles can, of course, be applied to any other building of like size.

PROOF that plumbing and heating contractors are recognizing the need for aggressive, competitive selling was had from the immediate response to the material published in the Merchandising section in our last issue. As a result of the widespread interest in this subject, we continue in the Merchandising section in this issue our study of what plumbing and heating contractors are doing in the way of priced displays, newspaper ads and handbills to meet the day's demand for Competitive Merchandising.

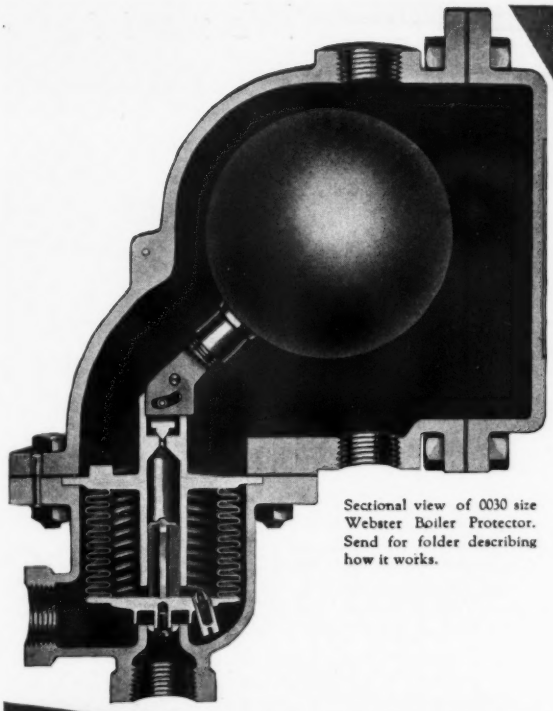
„YOUR articles on Utility company merchandising methods have always been read with interest."—Morris J. Johnson Plumbing and Heating Co., Rockford, Ill.

THREE major articles will be found in the AUTOMATIC HEAT section in this issue, and each one of them contains many helpful suggestions. "Experiences in Making Gas Installations" is the title of one of the articles. The author, R. H. Ruwaldt, describes experiences he has encountered in making new installations, conversion jobs, and common faults he has found in systems using gas for heating. Thomas R. Shaver, a prominent heating engineer, describes in another article a modernization installation on a large estate that required eleven oil burners. "Every Stoker Installation Is an Individual Problem," is the title of the third article.

ONE of the most interesting papers read at the annual meeting of the American Society of Heating and Ventilating Engineers in Cleveland was one on the subject of Room Cooling, prepared jointly by J. H. Walker, S. S. Sanford and E. P. Wells. The tests described in this paper were made because the authors felt that some actual results of the performance of a building cooling system would be of considerable value to designers of such systems. Excerpts from this paper are contained in an article beginning on Page 39.

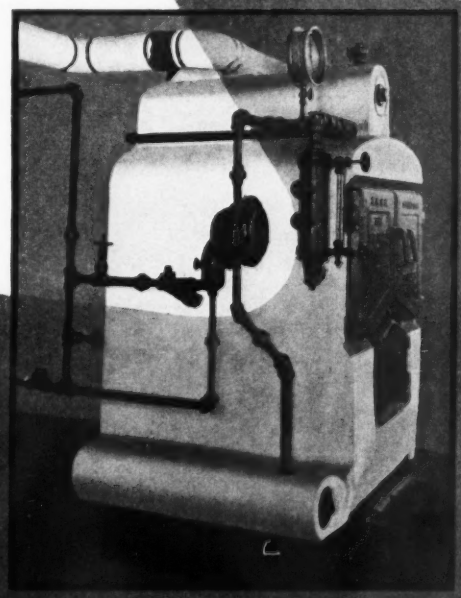
THE "Spend for the Home in 1932" campaign is being received with tremendous enthusiasm, not alone in the plumbing and heating industry but in almost every industry that is associated in any manner with the home. Thousands of the stickers and posters have already been shipped to contractors, wholesalers and manufacturers of plumbing and heating lines. On the inside of the back cover will be found full details as to the poster, etc.

The man who is so busy that he does not have time to read his trade paper is like the man who was so busy chopping wood that he did not have time to sharpen his axe.



Sectional view of 0030 size Webster Boiler Protector. Send for folder describing how it works.

POSITIVE PROTECTION for small BOILERS



Webster Boiler Protector installed on Cast Iron Boiler

COSTLY experience has proven that increased use of motor-driven return pumps, oil and gas burners, etc., has increased the need for positive protection against accidental low water. Now, more than ever before, your clients and customers must be protected against the possibility of added expense resulting from cracked, broken or burned boilers.

The exclusive patented Webster Boiler Protector gives this needed protection. Placed below the normal water line, it is not intended to serve as a "feeder" but as emergency protection. Positive action and immense capacity are assured by the enormous power inherent in its unique design. Repeated severe tests, and operation in hundreds of installations justify the statement, "The Webster Boiler Protector *cannot be stuck closed.*" . . . Made in two sizes for all low pressure heating boilers. Send for the Boiler Protector bulletin.

WARREN WEBSTER & COMPANY, Camden, N. J.
Pioneers of the Vacuum System of Steam Heating
Representatives in Principal U. S. Cities — Darling Bros., Ltd., Montreal, Canada

The Webster Boiler Protector

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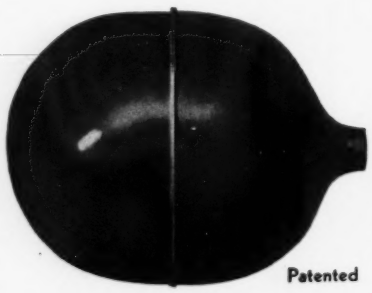
ASK YOUR JOBBER

STANDARD ROUND FLOAT
Made by STOKES



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SOLD ONLY THROUGH RECOGNIZED JOBBERS

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EMPHASIZE
Stokes
HARD
RUBBER
FLOATS

We're emphasizing them for YOUR good as well as ours. Here's a product that sells easily and *stays sold*, winning increasing good will for you with every year of service.

If you sell STOKES Hard Rubber Floats you have an unbeatable argument on your side—for STOKES Floats *can never rust nor corrode, and may be guaranteed for the life of the tank.*

Gain your customer's confidence with STOKES Hard Rubber Floats, and you may be in line to sell him many hundred dollars worth of other plumbing fixtures. It's certainly worth trying.

Another Profitable Item is the

STOKES HARD RUBBER OVERFLOW TUBE with ADJUSTABLE GUIDE ARM and REDUCING BUSHING

Look for the
Mark of Quality

Plumbers appreciate the ease with which this truly modern fitting may be installed and operated. You can sell it at a Profit. ASK YOUR JOBBER.

MOULDERS SINCE 1897

Jos. Stokes RUBBER CO.
Trenton N. J.

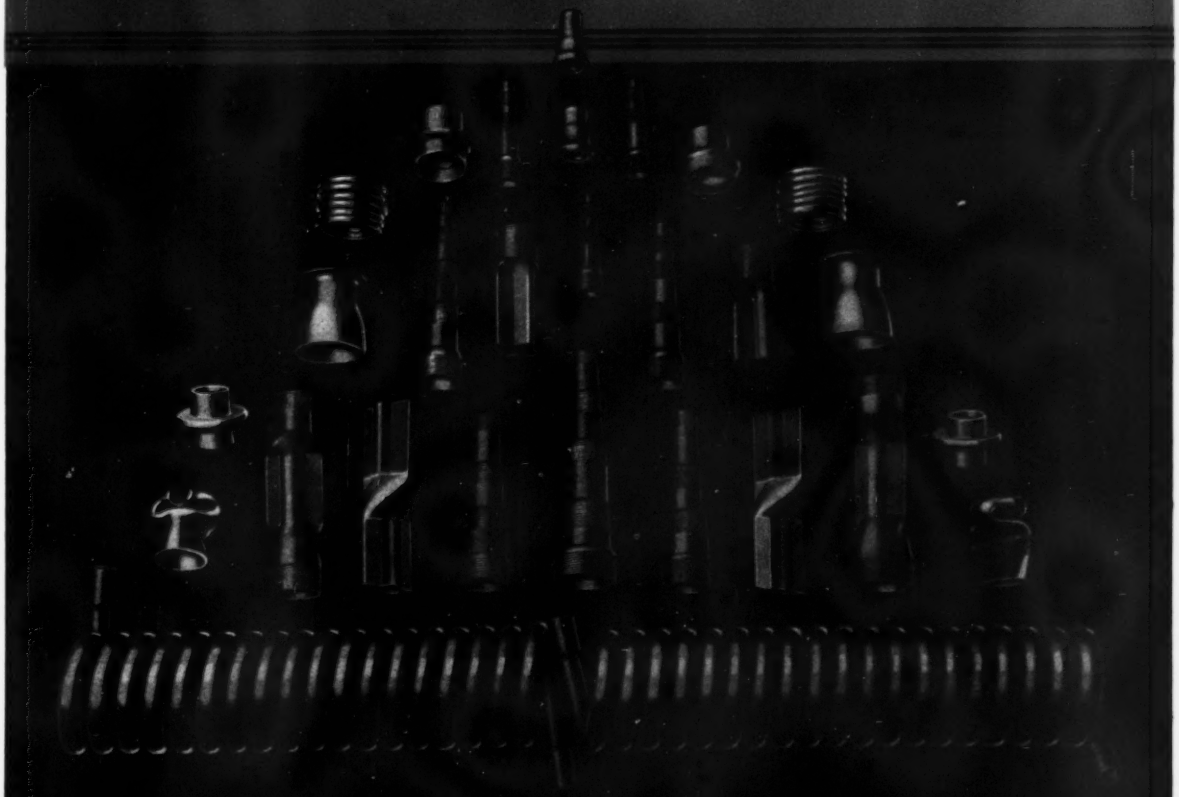
Canadian Plant: Welland, Ontario

HARD RUBBER IN EVERY CONCEIVABLE FORM — MOULDERS OF PLASTICS

SPANG

WELDED STEEL PIPE

bends, flanges, threads, cuts and coils easily...



The illustrations shown above, picture a number of abusive shapes into which sections of "Spang" Steel Pipe have been cold worked without breaking either the pipe or the weld. They clearly illustrate the possibilities and easy working qualities of "Spang" Pipe for flanging, bending or coiling. "Spang" Pipe is made by "The Oldest Operating Pipe Mill in America" and is available through reliable jobbers everywhere . . . Black or Galvanized as desired.

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Call on the complete Scovill line

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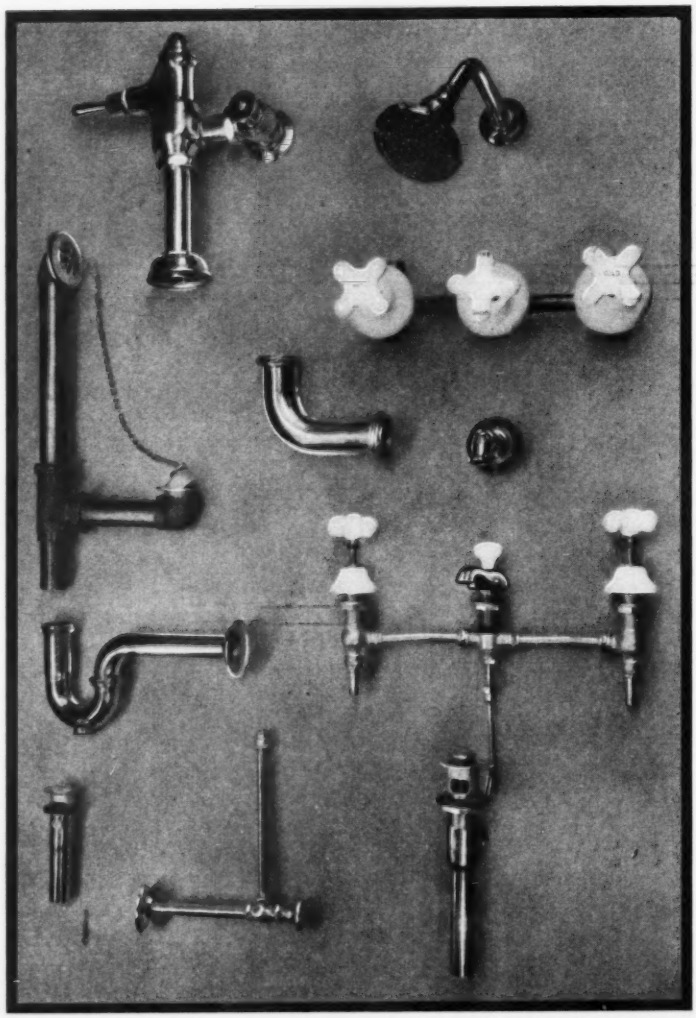

SCOVILL MANUFACTURING COMPANY
PLUMBERS' BRASS GOODS DIVISION
WATERVILLE • CONNECTICUT

THE number of buildings equipped 100% with Scovill products is constantly increasing. The wise plumbing contractor, seeking a complete line of brass goods that will give service to his customers, uses Scovill and is *sure*.

The flush valve by Scovill, for example, has an original self-lubricating feature that means years of smooth operation. The many types of Scovill shower, bath and lavatory fittings are simple, easy to install, and work efficiently without constant servicing. The great variety of Scovill tubular goods permits an almost limitless number of combinations for the lavatory and sink.

You will guard the standards of your job by using Scovill equipment throughout. All materials are laboratory tested . . . and every product is backed by a reputation for quality, built up during 129 years in business.

Send for a catalog showing the complete Scovill line . . . everything in brass goods inside one cover. The articles are arranged in their proper relations, with a thumb index for quick reference. At the end of each group there is a table which gives gross list prices and a check on finishes, styles, sizes, gauges, etc. A copy will be sent on request.

SCOVILL **Scovill**

Install STREAMLINE *copper pipe and fittings at practically the same cost as iron . . . and watch your profits grow*

THE cost of installing Mueller STREAMLINE hard copper pipe and fittings is so low that some of your competitors are meeting, with this material, estimates based upon the use of iron pipe and threaded fittings. There are three reasons for this:

1. No insulation. Only in exceptional cases is this necessary on hot water and steam lines.
2. Smaller pipe sizes can be used.
3. Short ends of pipe need not be wasted.

On the other hand, your customers all recognize the fact that copper pipe is worth considerably more than iron.

Between these extremes of low installation cost and willingness to pay a higher price, is your opportunity for a larger profit than usual.

In addition, an installation made with Mueller STREAMLINE fittings and hard copper pipe means a job that is absolutely leak-proof. Rust cannot corrode it. Expansion cannot work it loose. Vibration cannot make it leak. The joint is really stronger than the pipe itself.

Mueller STREAMLINE fittings are sold in full range, and in sizes from ¼″ to 6″, inclusive. If you are not familiar with the profit opportunity in this new patented joint, consult your jobber or write for our catalog.

Patent 1,770,852
Patent 1,776,502
Other Patents Pending

Mueller Brass Co.

PORT HURON, MICHIGAN

MUELLER BRASS CO. OF CANADA, LTD., TORONTO, ONT.

Three Generations of Brass Making

Patent 1,770,852
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Other Patents Pending

"Spend for the Home in 1932"

TODAY, more than ever before, the need for improvement in the home is in demand. In fact, today is the day for improvement in everything.

Your business should improve and you should put forth every effort to make it do so. There are opportunities on all sides of you. All you need is a lead to them.

Sherwood Ball Cocks provide that lead. They will give you a reason for calling on your customers, for getting into bath rooms to make a "ball cock test" of the closet tank.

Take this tip of Sherwood's. Order a dozen Sherwood Ball Cocks from your jobber now and start out at once to sell them to the homes in your community. You'll find sales easy and you'll find customers receptive to the idea of spending for the home this year.

Wherever you sell a Sherwood you can also sell other things —pottery, water heaters, kitchen sinks, bath tubs and other things but let Sherwood find the prospects for you.

Start today!

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JEFFERSON AND MT. ELLIOTT AVES. DETROIT, MICHIGAN

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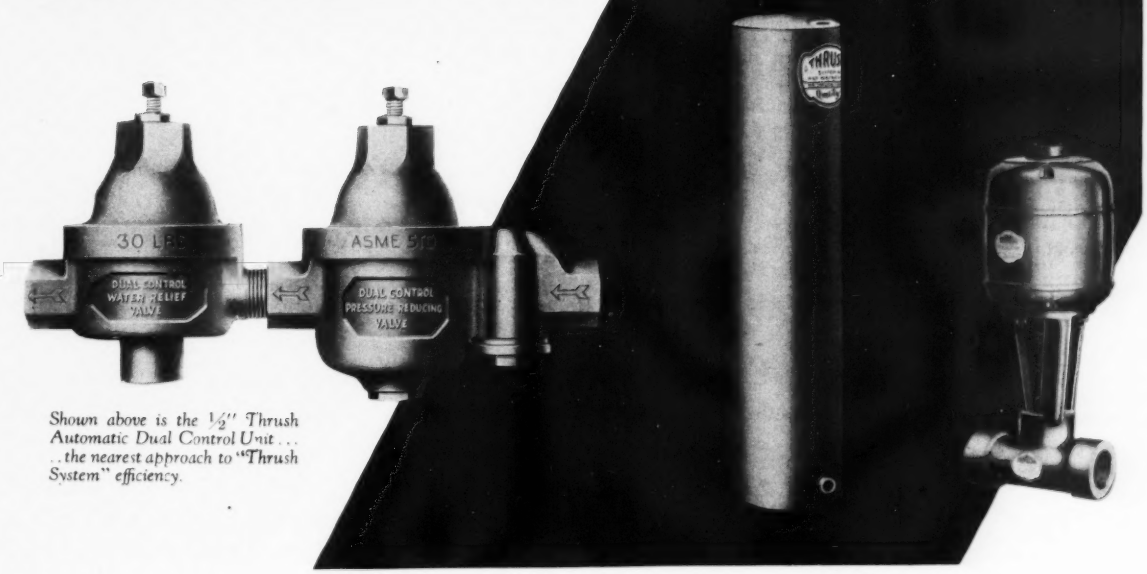
SHERWOOD Ball Cocks

Sell Hot Water HEAT Thrush Equipped



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ANALYZE the Hot water Heating installations in your territory . . . note the ones that are giving lasting service . . . walk down into the basement . . . and—you'll find "Thrush System" on the job. Furthermore—Thrush Products of today are superior to those which are now serving so faithfully. Heating contractors are invited to ask our assistance in selling Hot Water Heat.

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Thrush Hot Water Heating Specialties are fully guaranteed and backed by a service policy which assures complete satisfaction. We feel it our duty to know that Thrush products function on *every* job.

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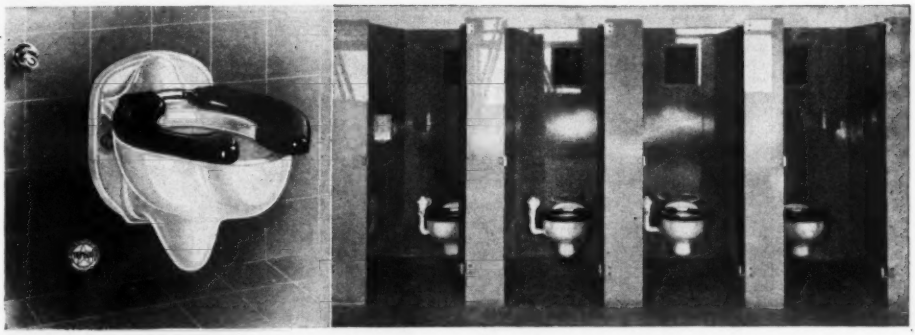
One of the duties of the housewife is the efficient operation of her household . . . and making more attractive its various departments . . . She is always glad to hear your story about anything that will add convenience or beauty to her home . . . whether it be modest or pretentious . . . So talk to her about WB Dependable Double Sink Faucets . . . Show her these gleaming fixtures . . . there are many models . . . Tell her how easily the silver-like finish is cleaned . . . Tell her how the careful design and manufacture of these faucets guarantee a continuous supply of water from one faucet . . . hot . . . cold . . . or temperate . . . as she desires . . . Talk to her now about it . . . . . .

WOLVERINE BRASS WORKS
GRAND RAPIDS - - MICHIGAN
We Sell the Retail Plumbing Trade

WOLVERINE



Schools recognize the importance of hygiene in specifying TE-PE-CO

. . . and they recognize, too, the fact that in this modern age appearance counts with students and their parents.

The many improved features of Te-Pe-Co Wall Closets meet every sanitary requirement and create a decided impression of efficiency and sound judgment on the part of those who specify their installation.

Made of glistening white two-fired vitreous china, impervious to wear and stains, Te-Pe-Co Wall Closets represent the highest development to which this form of modern closet has been carried.

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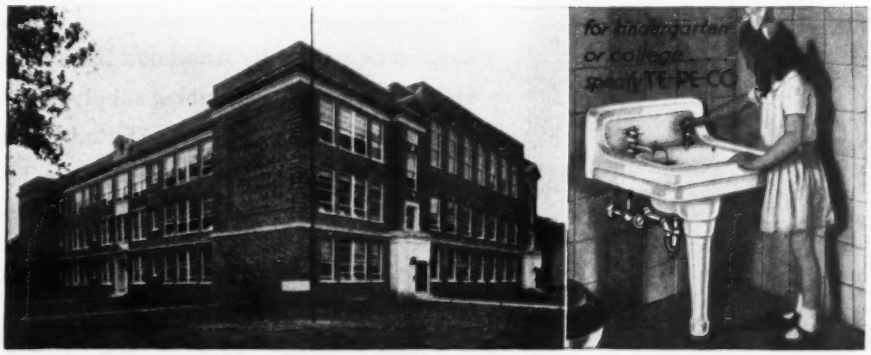
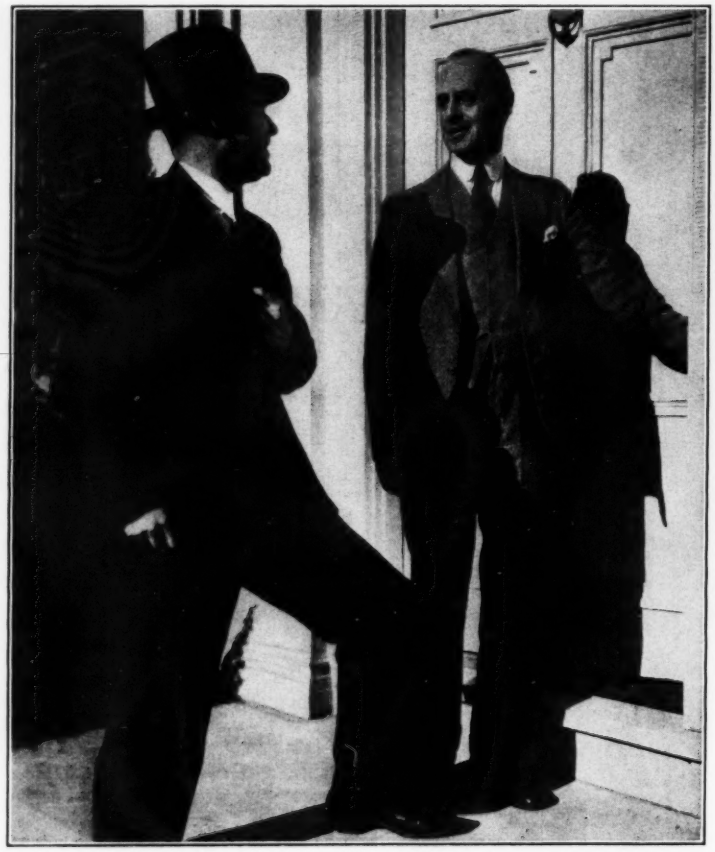
TE-PE-CO

All Clay Plumbing Fixtures

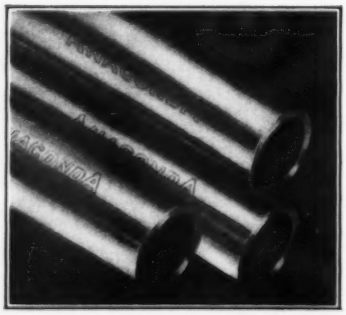




ANACONDA
from mine to consumer
REG. U.S. PAT. OFF.

"And . . . I got the job"

"He told me he wanted water pipe that would not rust. When I suggested Anaconda Brass Pipe, he said, 'That's the kind' . . . and I got the job."



To builders and home-owners everywhere, the name "Anaconda" means dependable quality . . . quality safeguarded throughout manufacture . . . quality which in turn is reflected in the dependable service given by Anaconda Brass Pipe in thousands of installations. Leading plumbing supply houses carry Anaconda 67 for normally corrosive water, 85 Red-Brass for highly corrosive water, and Deoxidized Copper Water Tubes. The American Brass Company, General Offices: Waterbury, Connecticut.

ANACONDA BRASS PIPE

PRESTO!..CHANGO!

LIKE tricks? Well, here's one that you can learn to do in two minutes. And *it will make money for you, too!*

Thousands of prosperous plumbing dealers have already learned it. Just read this short page and you will be able to work it right in your own store today!

The idea of this trick is to turn a dollar into a dollar and a half—and to do it every time you sell a medium priced toilet seat.

You can try it when the next customer comes in your store. All you need is a genuine Church Regal Seat, and two magic words—*sheet-covered!*

HERE'S exactly how it works. A customer enters your store.

"Good morning, Mrs. Jones. What can I do for you today?"

"I want a new toilet seat. Ours is only a year old, but it's worn out. Do you have those nice white seats?"

"Yes, Mrs. Jones. You mean the Church Sani-Seats?"

"Yes, Church Seats. They're the best, aren't they?"

"They certainly are, Mrs. Jones."

"And how much are Church Seats?"

"Well, here's one for $5.00. The Church Regal Seat."

"Can't I get a white seat for less?"

"Not a genuine, *sheet-covered* Church Seat, Mrs. Jones. And there's all the difference in the world between a real *sheet-covered* seat and one that's painted to look like the genuine.

"Your present seat wore out in less than a year. That's because it's not *sheet-covered*. The best paint or lacquer on earth will chip and peel and that's why Church won't make a sprayed or painted seat.

"*Every* Church Seat is covered with a glass-smooth *sheeting*. It won't chip, crack or peel off because this solid sheet finish is welded on."

"That sounds sensible. I'll take the Church Seat. And thank you for telling me why Church *sheet-covered* Seats are best."

• • •

DID you hear that cash register ringing up $5.00? Yes, you could have sold Mrs. Jones a sprayed seat and made about $1.00. But you sold her a Church *sheet-covered* seat and made $1.50. Try it with the next ten customers and make $5.00 *extra* profit. C. F. Church Manufacturing Co., Holyoke, Mass.

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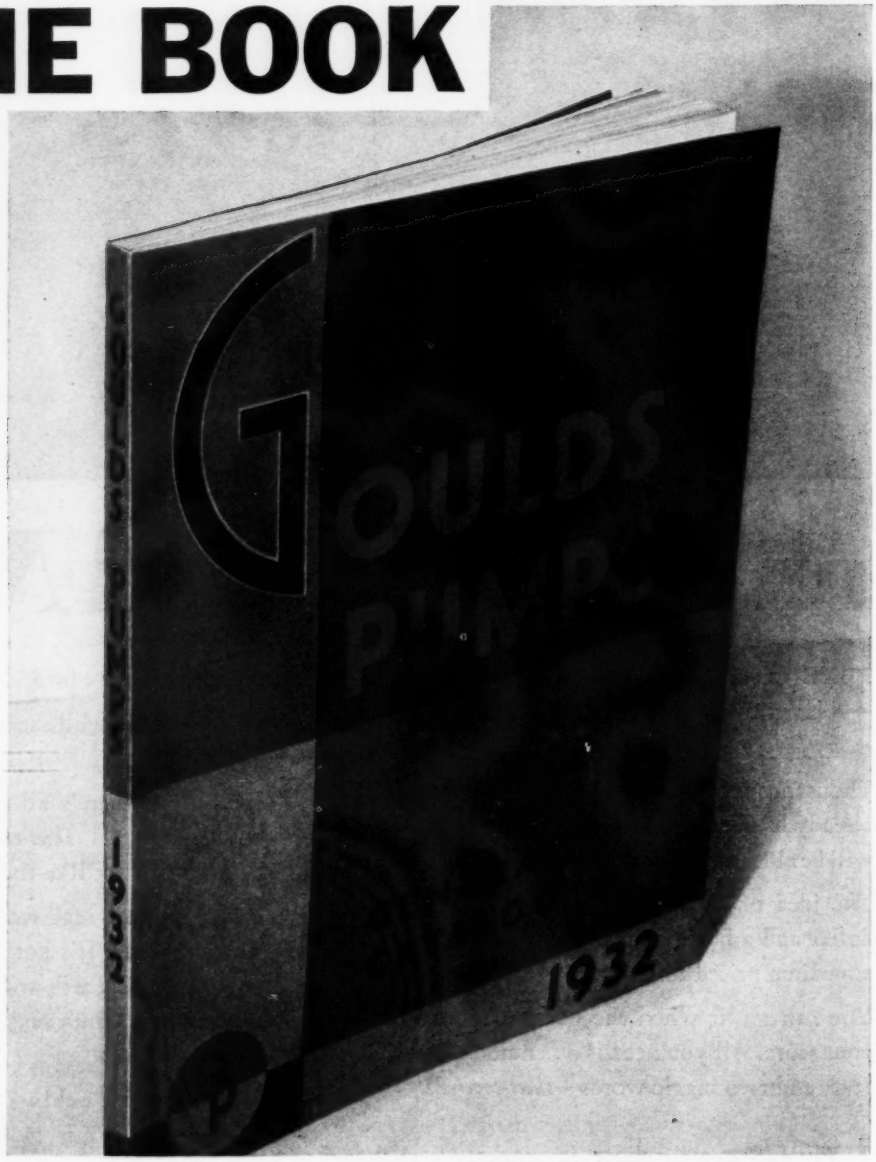

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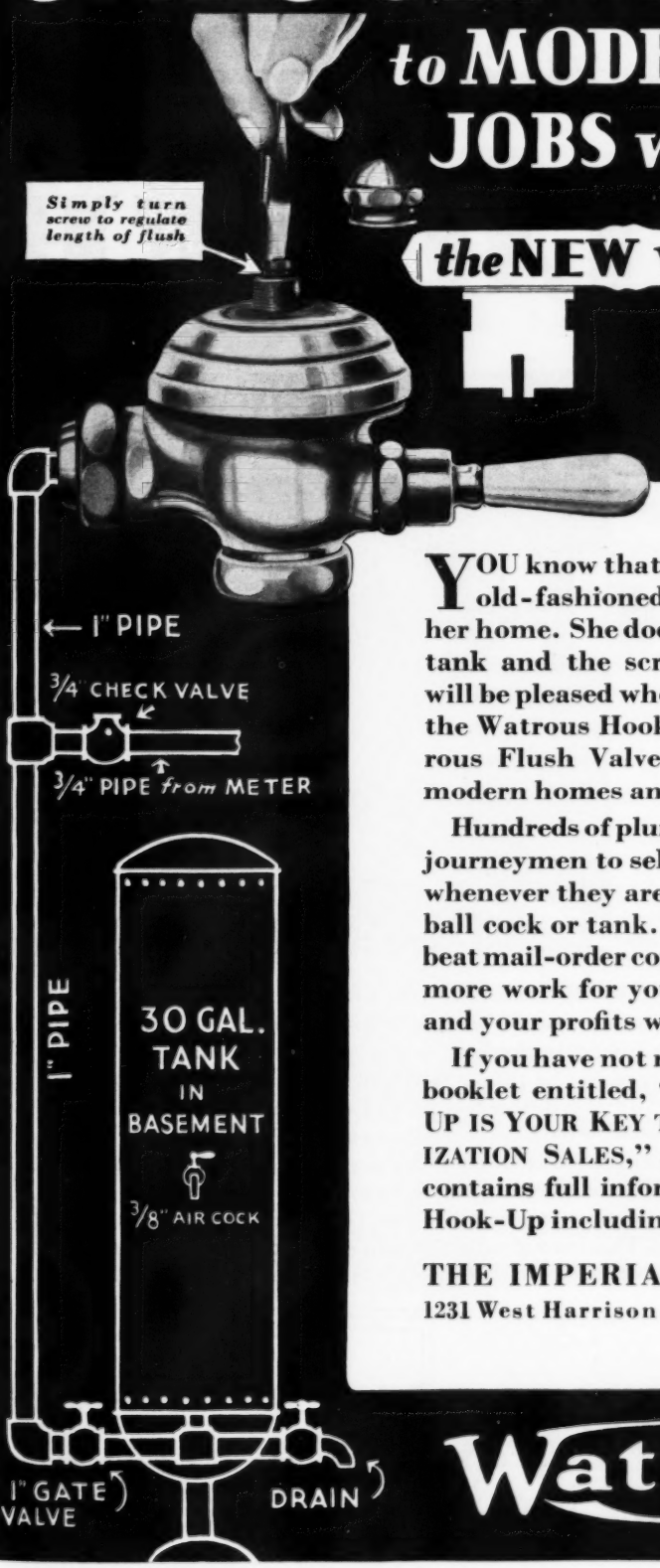

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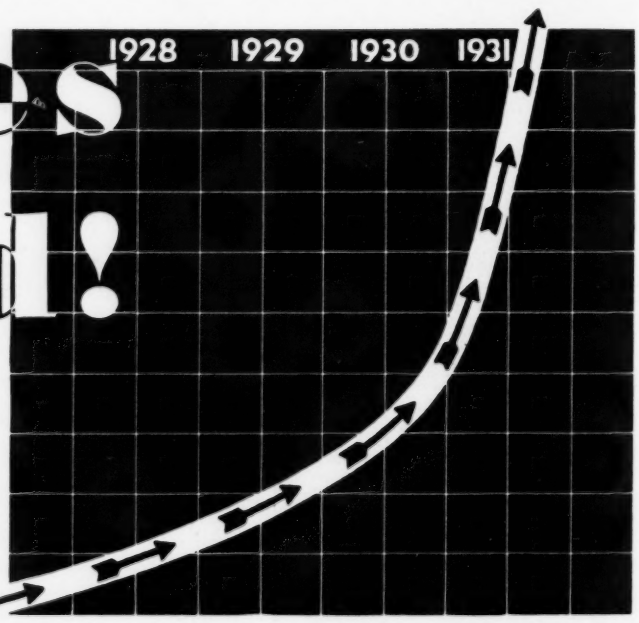

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A QUIET saddle horse and a bucking broncho may *look* somewhat alike—but one is a dependable servant, while the other is loaded with "dynamite". Nipples (spools), too, resemble each other before they are installed—but what a difference a few years of service may show!

When you plan a Reading Pipe installation, make your decision on nipples (spools) RIGHT. Be sure that only genuine Reading Puddled Iron Nipples (Spools) are used with Reading Puddled Iron Pipe. Then you will have an installation that defies corrosion *in every part*—an installation that will last throughout the entire life of the building.

Every Reading Nipple (spool) is marked with an indented band, midway between the threaded portions. Look for this mark. Like the indented spiral on the Reading Pipe, it is the sign of generation-lasting, genuine PUDDLED Iron, made as only Reading makes it.

READING IRON COMPANY
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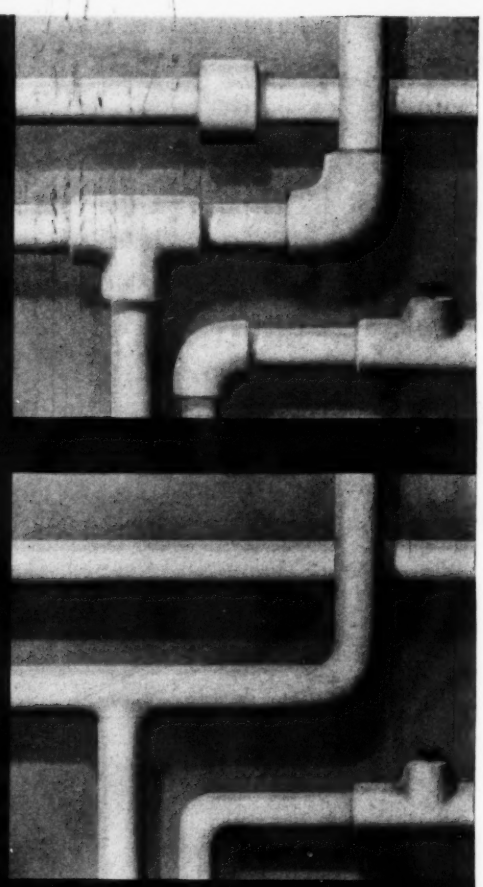
IT'S INSULATING THE B-u-m-p-s That is expensive



WELDED piping is cheaper to insulate because it has no bulky joints which require special jackets.

Welded joints are practically flush with the surface of the pipe. They can be covered with standard insulation. No extra costs are involved. No extra time is consumed. And, once covered, they are permanently covered. Properly welded pipe joints never leak.

Low erection cost of insulation is only one of the many advantages of oxy-acetylene welded piping. For architects, engineers, and specification writers who are looking for a better method of installing piping at lower cost, we have prepared a short, interesting book, "Oxwelded Construction for Modern Piping Services." Write for your copy today. We will send it without cost or obligation on your part.

This picture shows the smooth, strong joint produced by oxy-acetylene welding. How ox-welding and cutting simplify piping installation is clearly shown in a new series of motion pictures now available for free distribution. Your professional or trade organization will find these pictures interesting and helpful. Write for release details.

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Our Industry

NEW SALES IDEAS

A New Sales Influence

A new influence is entering the plumbing, heating and air conditioning field. It is a force with which dealers, wholesalers and manufacturers will have to reckon. If successful, this new influence may change some of our common practices.

Manufacturers trained in other fields have been using the past year or two to develop additional products by which their plants can be kept busy. This search for new lines is leading some of these established concerns to approach the heating and plumbing market not only with new products, but with a training in methods of selling which is new to many established manufacturers and dealers in this field.

Spread for the Dealer

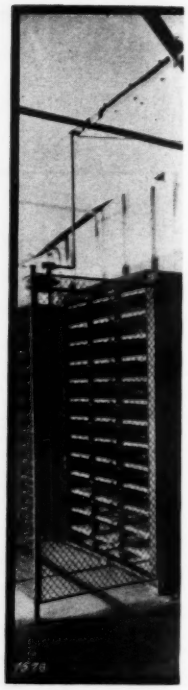
Some other industries with longer training in the development of sales are accustomed to provide dealers with a sufficient spread to permit intensive sales work. A letter on the writer's desk brings word from a successful Eastern dealer that he has given up the line of heating which he had sold and installed for years to take on a line of warm air units. He finds that with a much larger spread for the dealer and with protection from competition in his assigned territory, he can make more money.

Air conditioning has caught the country's fancy. It is bringing to the task of cooling and heating American homes a group of new companies with different ideas of promoting sales, including features such as a fixed advertised price to the consumer and a large spread for the dealer for which he must give energetic and consistent sales effort.

Answering an Old Problem

Some of the major problems of this industry may be solved through the influence of these new companies who have already worked out the answers in other fields.

Heat Office Building with *Refrigerating Equipment*



By
TERRY MITCHELL

IF A refrigerating machine can collect and remove the heat that leaks into a cold storage room, it should be possible for the same machine to collect heat from the outside air in cold weather. By a little ingenuity also it should be possible to change this vast supply of heat at a low temperature into a smaller quantity of heat at a temperature high enough to be used for warming houses.

At least, that was what one or two scientists had figured out, but it remained for a Scotchman to be the first who believed in the idea sufficiently to spend his good money in trying it out.

This gentleman, an engineer by the name of T. G. N. Haldane, made an original set of calculations on the problem, including in his study the results of a test made on a new type of horizontal ammonia compressor, which was of American manufacture.

In October, two years ago, Mr. Haldane presented a paper before the Institution of Electrical Engineers in England, outlining his calculations and describing a working plant he had built for heating his home located in the country.

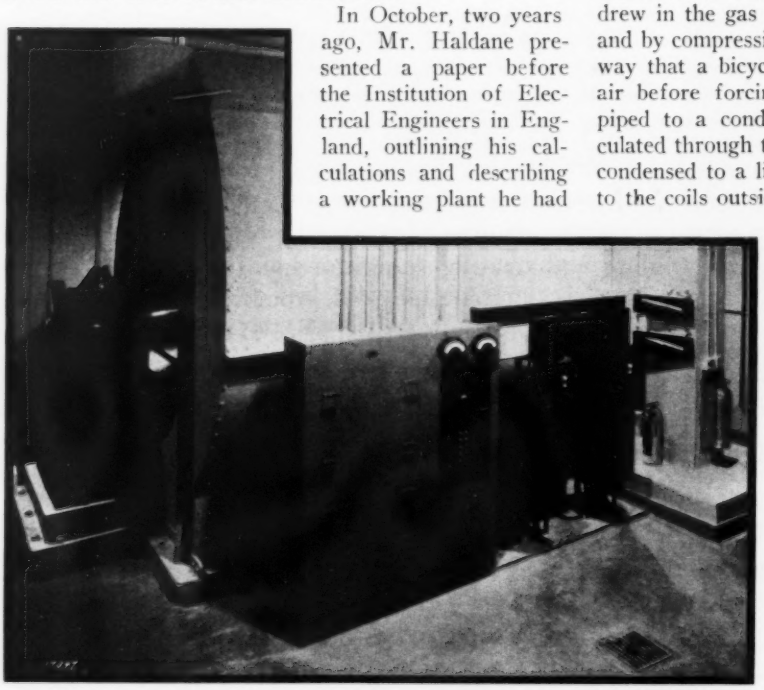


Fig. 1—At the left is an exhaust fan and its control equipment which also regulates the supply fans

He arranged his "cooling coils" so that they could be made to collect heat either from the outside air or from the water of a running stream nearby. Throwing a dam across this stream, he installed a water wheel which turned a generator, the generator supplying the electrical current for operating a motor in the basement of his house. The motor was belted to a small refrigerating machine. The compressor of the refrigerating machine drew in the gas evaporated in the cooling coils outside, and by compressing it, raised its temperature in the same way that a bicycle pump raises the temperature of the air before forcing it into the tire. The hot gas was piped to a condensor, where it heated the water circulated through the radiators of the house. After being condensed to a liquid, the "refrigerant" was piped back to the coils outside, to be expanded and evaporated into a gas again.

Where electrical current costs several cents a kilowatt-hour, the refrigerating machine is able to deliver from two-and-a-half to five times the values of this electrical current, in useful heat. This remarkable fact is really the basis upon which the scheme is now attracting so much attention. Heating with a refrigerating machine is more than substituting a switch for a shovel—in those cases where it is practical it is made to deliver more than is put into it. It is a step toward perpetual motion.

The average household hand-fired heating boiler does well if it delivers 50 per cent of the heat available in the coal. Automobile engines are said to deliver in practice about one-

Fig. 2—Above, the indirect electric heaters are at the left. These heat the air supplied to the fan which is seen through the open by-pass dampers

velous 300 per cent efficiency has been made insignificant by being called the "coefficient of performance."

For heating work, the performance is made more wonderful by *partially* reversing the refrigerating cycle and turning to advantage the losses which detract from the efficiency of the standard plant. In ice-making and cold storage plants the lack of good insulation means that heat will leak into the system and cut down its effectiveness. In the heating cycle the more heat that is collected by the coils and piping, the better we like it.

Theoretically, the heat efficiency, or what is known as the thermal efficiency of a heating system, may be figured from the formula

$$\frac{T_1}{T_1 - T_2}$$

In this formula T_1 is the temperature of the hot gas after it has gone through the compressor, and T_2 is the temperature of the colder gas in the coils outside. Both temperatures are measured from the point of absolute zero, which in the Fahrenheit system is of course 460 degrees below zero. Since in the denominator of the ratio one temperature is subtracted from the other, this part of the fraction is much smaller than the numerator. When one number is divided by another considerably smaller than itself, we always obtain a figure greater

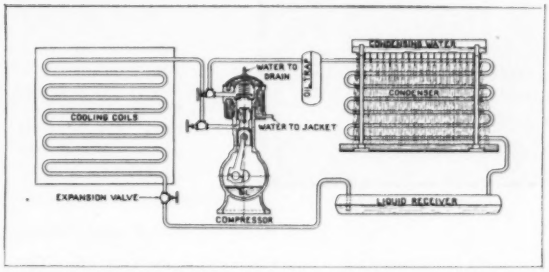


Fig. 3—At the left, an elementary diagram of the refrigerating cycle using the compression system and a cross-section view of an enclosed type compressor showing how the gas enters the cylinder through the valve in the top of the piston

third of the energy in the fuel; another one-third goes out through the exhaust, and the remaining third is dissipated through the water in the radiator.

The compressor and other equipment in an ordinary refrigerating system, while not one hundred per cent efficient when taken part for part, are arranged so that the whole outfit extracts from the space to be cooled roughly three times as much heat or energy as is put into driving the refrigerating machine. Thus its efficiency is about 300 per cent. As nothing is supposed to be perfectly efficient because of friction, and other losses, the refrigerating plant has been robbed of its distinctive glory and its mar-

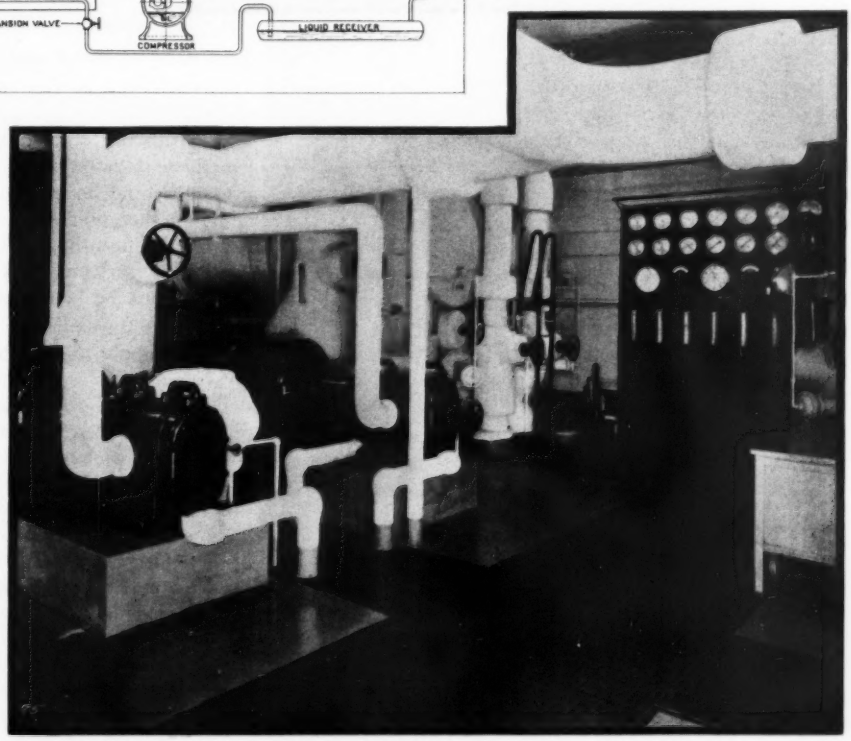
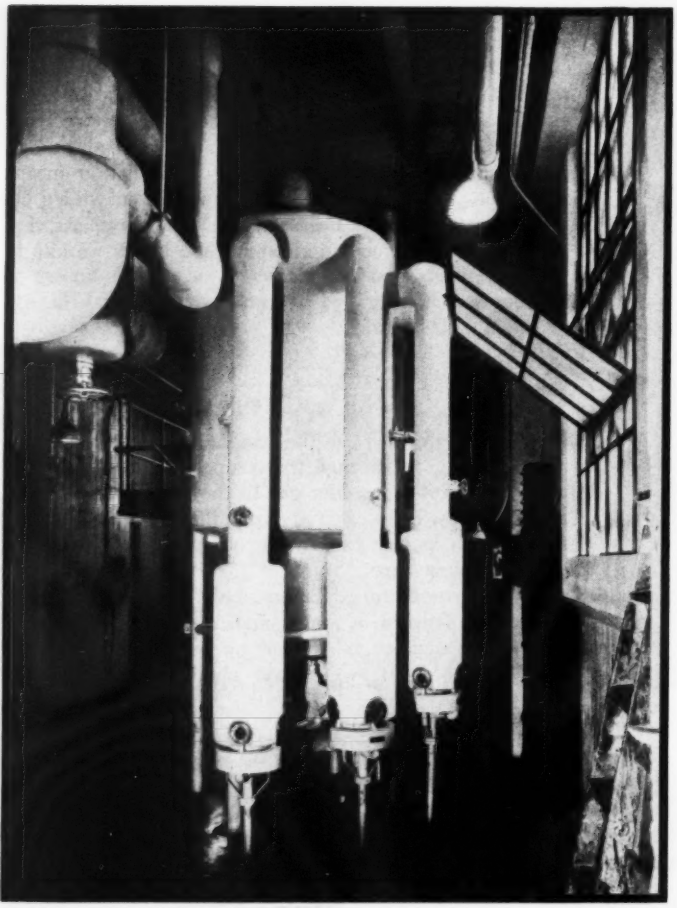


Fig. 4—In the foreground may be seen two methyl-chloride compressors and to the rear of them is one of the condensers and the gage board



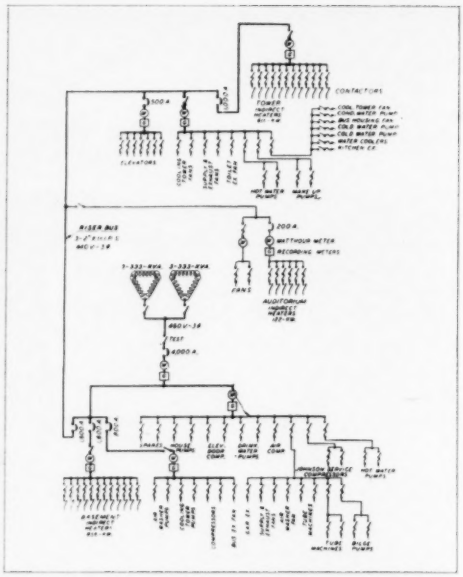


Fig. 5—Here is a line diagram indicating the electrical hook-up for supplying energy to the indirect electric heaters located in the lower, upper and auditorium ventilating systems as well as for the motors in the building

Fig. 6—At the left are the electric water heaters supplying general hot water requirements for the building. Six heating elements are mounted on a central storage tank

than one. By pure theory this formula shows it is possible to obtain an efficiency of over a thousand per cent.

In practice, the efficiency of the system is improved if the temperature range is kept within close limits; that is, if we arrange to heat the water without making the ammonia gas so very much hotter in the condenser than it was in the coils out in the cold air. For this reason insulation is applied to the combination condenser and water heater, as well as to the discharge pipe leading from the compressor to this apparatus. The warmer the outside air is, also, the narrower the gap between the low and high temperatures, and the higher the efficiency or coefficient of performance. This is one reason the system seems to be applicable only in southern climates.

The refrigerating machine not only collects heat from the running water or outside air, but it turns into useful heat most of the energy put into the electric motor. This energy is added to the ammonia gas in what is known as the heat of compression. If the system is extracting say 200 Btu. per minute from the low side, the heat of compression brings the total heat up to 260 Btu. or more, depending on the pressures carried.

If ammonia is used, it would be necessary to carry a head pressure of more than 400 lb. in many instances in order to obtain a temperature in the condenser sufficient to heat the water in the radiators from 120 deg. Fahr. to 140 deg. Fahr. Such a high head pressure calls for a two-stage compression system, in order to gain the efficiency and economy which was desired.

Methyl chloride can be substituted for the ammonia, the pressures in this case being say 24 lb. suction and varying all the way from 90 up to 225 lb. condensing; usually with pressure around 100 lb., single stage compression could be made to suffice. A standard enclosed ammonia compressor can be made to handle methyl chloride by installing metallic packing around the crankshaft, and by using lead gaskets. In any such case the system must be kept free of moisture.

In cities the water in the municipal mains could be made to supply the low temperature heat in many cases. By cooling this water from 55 deg. Fahr. to about 40 deg. Fahr. and then allowing it to run back into the pipes, the necessary heat could be made available at a comparatively high temperature. The 24-lb. suction pressure given for methyl chloride applies to this condition, if the water is cooled to 40 deg. Fahr. with ammonia, the ammonia suction would be approximately 45 lb. Otherwise the cooling coils would be placed in the open air and water would be kept running over them by a pump; this water would be rained down through a spray tower in which it would be warmed to the temperature of the air. Unless brine was resorted to, the cooling tower could not be used in freezing weather.

No one would install a refrigerating system in an important building or even in a home without arranging to use it in summer for cooling purposes. By turn-

ing the proper valves and dampers much of the same equipment can be used for heating in winter and cooling in summer. The water raining through the cooling tower would be circulated in summer through the condenser, and the coils be made to cool water or brine, which can be used for making ice, chilling refrigerators, or condition the air. In winter, it may some day prove possible for large ice plants located in warm climates to supply hot water for heating purposes to the houses or buildings nearby, the necessary heat being extracted from other water in the process of freezing it into ice.

As the same refrigerating plant is used for both heating and cooling, the term reversed refrigeration has been commonly applied to the whole scheme. This expression is striking enough to catch the popular fancy and will probably always be applied to the process of heating with a refrigerating machine. Actually the refrigerating system is not reversed at all; the ammonia or methyl chloride gas passes through the compressor in the same direction whether the refrigerating machine is being used for heating or cooling; in both cases it collects heat from a low temperature source and discharges it at a higher temperature. As explained in the paragraph above, the evaporator and condenser are made to produce different effects by switching the cooling tower from one to the other as desired. The truth is that this heating system is a reversal of the heat engine and not of the refrigerating cycle. A heat engine transforms the heat in the steam or fuel oil or gasoline into mechanical work. The reversed heat engine changes the mechanical work, represented by the motor driving the compressor, into heat.

Mr. Haldane, realizing the limitations of the scheme, has applied it chiefly for heating water in swimming pools, and in this work obtains a heating efficiency in one case of something over 600 per cent. The warm water overflowing from the pool can be utilized in supplying most of the heat for the incoming fresh water. One of these installations maintains a temperature of 75 deg. Fahr. in a tank holding 125,000 gallons of water, the heat being collected entirely from water at 50 deg. Fahr. in a canal nearby. The plant was guaranteed to have a heating efficiency of over 430 per cent; every kilowatt hour of electricity used in the motor supplied nearly 15,000 heat units (Btu.). A higher efficiency could have been obtained if the evaporating and condensing pipes had been of larger proportions, though the expense of this did not seem justified.

Heating with a refrigerating system at present involves more machinery and control apparatus than would be wanted in the average home, unless the owner was a retired engineer who loves compressors, thermostats, pumps, floats, valves, electric motors, and switches, and the auxiliary gadgets. This accounts at least in part for the fact that the first outstanding installation of the system in America was made in the office building of an electric power company. To avoid being literally at the mercy of the winds, when it came to getting a regular supply of heat, direct electric heaters were also installed in the rooms of the building. The structure, erected at Los Angeles by the Southern California Edison Company, rises over 200 ft. above the sidewalk, has 13 main floors, and is one of the first all electric buildings in history.

The mechanical equipment is installed partly in the basement and partly in the tower on top of the build-

(Continued on Page 119)

Fig. 7—Diagram showing the local feeders for the direct heaters and the arrangement of the temperature control devices

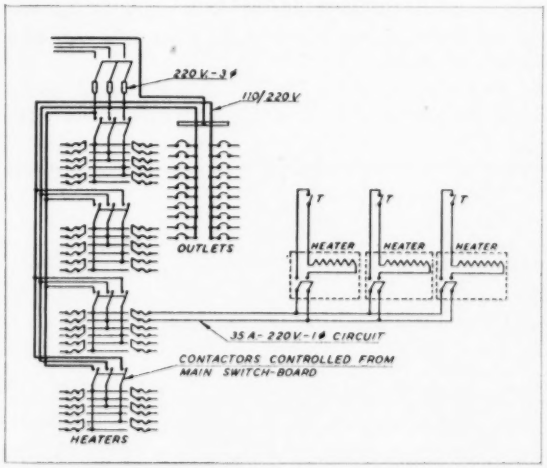
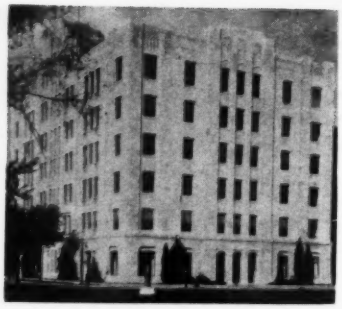


Fig. 8—The Southern California Edison Building which is heated with refrigerating equipment. Electric heating provisions also have been made



PLUMBING
for Telephone Buildings

NATURALLY and inevitably any branch of construction or equipment required in the proper housing of such an important industry as the telephone service, gradually becomes standardized. This is true concerning the plumbing requirements for the modern telephone building.

Each individual building will have its own particular problems, different from those of other similar buildings, because of local conditions, local plumbing laws, etc. Nevertheless, the principal problems and requirements, due to the nature and character of the business itself, will be much the same, no matter where the building may be located.

Therefore, it is not surprising that the telephone companies have now reached a degree of efficiency where standards are being set up in the construction of their buildings, which meet their peculiar requirements, these standards having been arrived at through the test of long, practical experience.

The plumbing standards apply particularly to materials, types of fixtures, fittings, trimmings, etc. It is not possible to set up strict standards regulating plumbing practice, for that must to a large extent follow the requirements of the plumbing regulations of the city in which the building is located.

Just recently there has been completed in Hartford, Conn., a new building for the Southern New England Telephone Co., the plumbing installation for which is an excellent example of modern efficiency.

This is a six-story building, designed to be carried up eventually six stories more. Naturally sizes of main lines of pipe, etc. have been based on this future additional service.

The building is of core-type construction, one of the first telephone buildings of this particular type to be erected in New England.

From the plumbing standpoint this type of construction is very interesting. From Fig. 2, which is intended only as a simple descriptive sketch, but showing in a general way the arrangement of floor space in the new telephone building, we can explain what this core-type construction means.

In this type of floor layout, all mechanical equipment is concentrated in a single restricted area. The

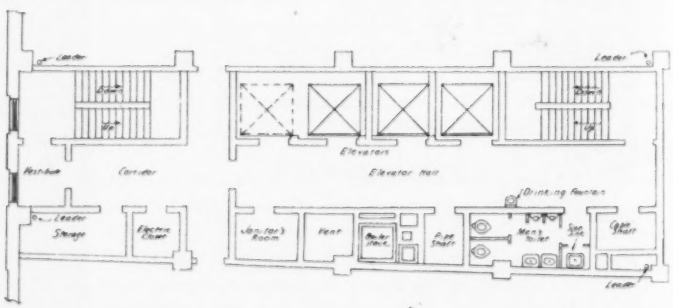


Fig. 1—Above is the new Southern New England telephone building located in Hartford, Connecticut. Fig. 2—The simple sketch at the left indicates what is meant by core-type construction. All mechanical equipment is concentrated in a single restricted area. Fig. 3—Here is a plan of the third floor core area which is typical of most of the other floors. All of the mechanical equipment is concentrated here

By R. M. STARBUCK

ARTICLE ONE

great advantage, particularly in such a building as this, is that the layout provides a maximum floor space available for practical purposes.

To show more definitely the use to which this mechanical equipment area is put, we show in Fig. 3 a plan of the third floor area, which is typical of most of the other floors.

In this area will be found the elevators, the stairways, the toilet rooms, pipe shaft, boiler stack, vent shaft, etc. It will be noted that all roof drainage is handled by four lines of rain leaders and that these four lines are also concentrated in this area.

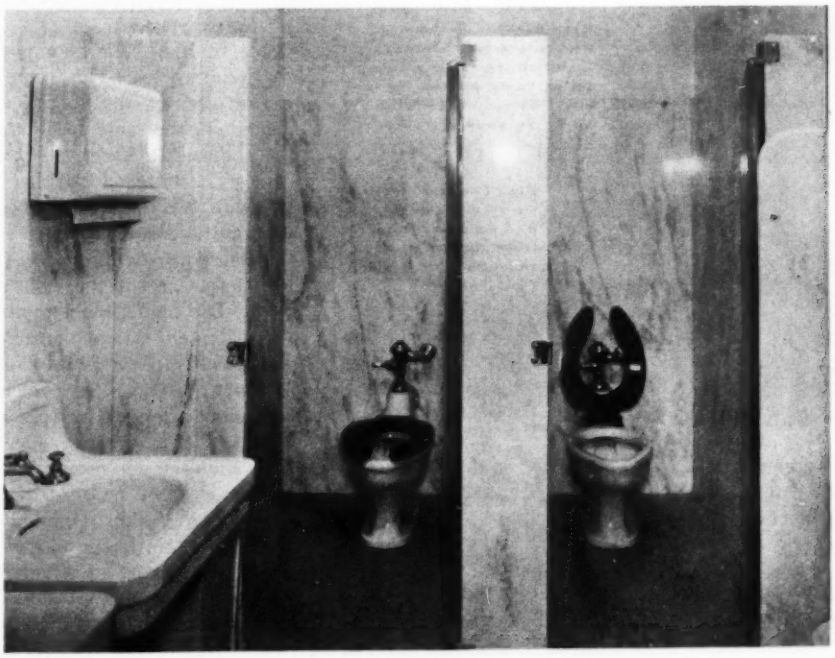
Not only does this plan provide the greatest amount of usable floor space, but it brings within a comparatively small area all danger that may come to sensitive telephone equipment from the breakdown of mechanical equipment.

On the first and fourth floors, the requirements of the women's toilet rooms made it necessary that they be given space outside the mechanical equipment area, but these two rooms nevertheless border on the area.

Unquestionably, at a later time when increased demands compel the enlargement of facilities, the problem will be met in the case of this building, by adding on additional floors. When this is done, the use of the mechanical equipment area will be duplicated on the added floors, this idea being carried out on every floor.

Fig. 4—Each drinking fountain is supplied with water cooled to 50 deg. Fahr. by means of a refrigerating system

Fig. 5 — This view shows one of the men's toilet rooms. Notice these are vented locally



Referring to Fig. 3, it will be seen that a pipe shaft is shown. This shaft passes straight up, through all floors.

Fig. 7 shows several of the principal pipe lines passing up through the pipe shaft. These lines would include drainage, vent, heating, refrigerating and other pipes.

At each floor there is a floor grating and a door opening into the shaft, making inspection and repairs on the pipe lines most easily handled.

Pipe specifications generally are in accordance with the regulations laid down by the American Society for Testing Materials.

It will be clearly seen that a building devoted to telephone service must be insured as far as possible against damage to any part of its equipment, for such damage easily becomes of direct and serious consequence to the public.

Consequently, it must be seen to that damage from leaky pipes, from condensation dripping from pipes, etc., cannot possibly fall upon any equipment such as switchboards, cables, etc. This applies whether the piping is a part of the plumbing system, heating, refrigerating or other mechanical system.

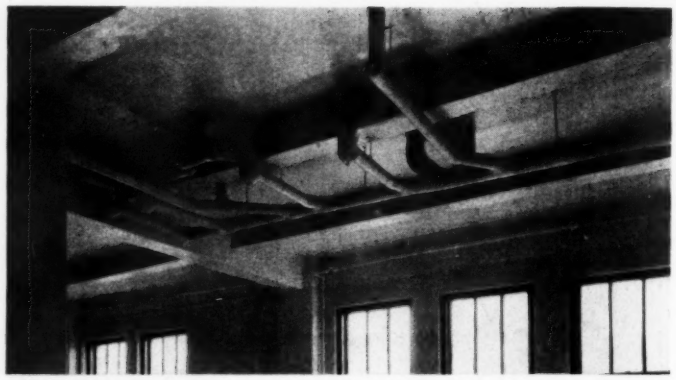


Fig. 8—The drainage piping on the ceiling of the third floor was covered to prevent any formation or dropping of condensate on equipment installed

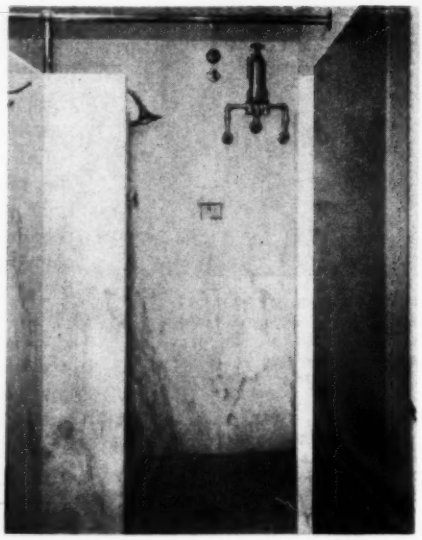


Fig. 6—This is one of the two men's showers installed in the men's toilet room on the second floor. A mixing valve is shown on the rear wall

Fig. 7 — Here are several of the principal pipe lines passing up through the pipe shaft

To overcome all danger of this sort, pipes located in places where such results would produce disastrous consequences, are required to be covered.

In Fig. 8 the drainage piping on the ceiling of the third floor is so covered. These pipes serve the kitchen on the fourth floor. In as much as the third floor will contain switchboards and other important equipment, it will be seen how necessary it is to take these precautions.

One of the features of the system of vent piping is that all vent stacks are carried directly through the roof. In other words, none of the vent stacks are connected back into the soil or waste stack above the highest fixture, according to general practice. This provision is made so that in future when the building is carried up these vent lines can be continued up without the necessity of breaking any connections with the soil and waste stacks.

In Fig. 3 the floor plan shows a men's toilet room. This same layout is found on each of the floors, except the second, where the same space is taken up by two showers, a water closet and lavatory.

The water closets are of the floor type, with extended lip and raised rear vent. In the women's toilet rooms, which we will consider in another article, the water closets are of the wall type.

The men's toilet rooms each have two water closets, two urinals and two lavatories. In Fig. 5 we show a view of one of these toilet rooms, which, however, does not include the urinals. The urinals are siphon jet wall urinals with integral trap and local vent hood. Fig. 6 shows one of the two men's showers, in the men's toilet room on the second floor.

In each of the elevator halls a drinking fountain is installed, also at several other points about the building.

Each drinking fountain is supplied with water cooled to 50 deg. Fahr. by means of a refrigerating system. By means of circulating pumps the cooled water is circulated at the rate of 6 gal. per minute, against a head due to the total height of the system.

PLUMBING and HEATING MERCHANDISING

The response to the material published in our last feature section was immediate, because contractors are recognizing the need for aggresive, competitive selling. In this feature section we continue our study of what plumbing and heating contractors are doing in the way of priced displays and newspaper ads and handbills. to meet the day's demand for

Competitive Merchandising

"Seeing Is Selling"

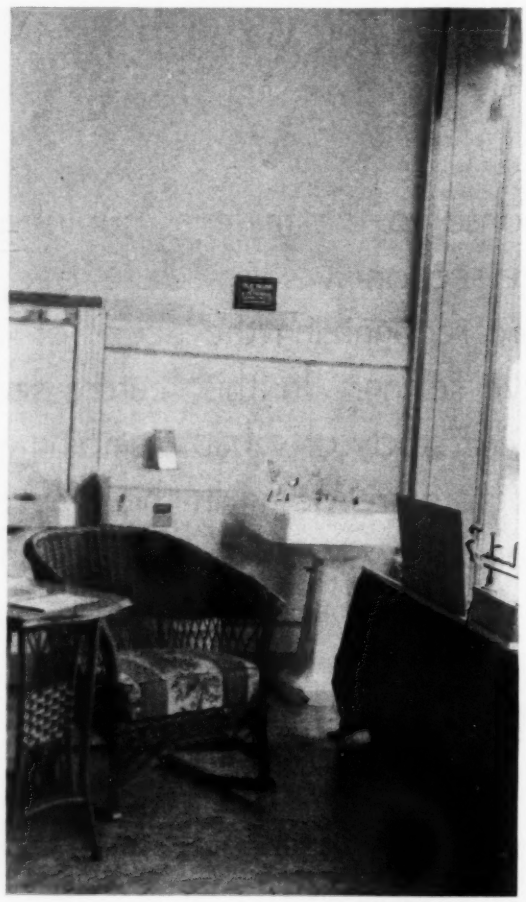
In this store everything is plainly priced. Results since its opening bear out the contention that "seeing is selling"

"SEEING is selling," says E. S. McKeown, who is manager for W. J. Sievert. The Sievert establishment has been in operation for 12 years, but Mr. McKeown's remark was inspired by the experience of the firm since recently opening the new store at 3711 North Avenue, Chicago. The business has always been at this location, but there is evidence that the new showroom is going to justify itself in sales produce.

For example with this story we publish photographs taken before and after a modernizing job handled by the Sievert organization. This bungalow was recently purchased. The lady of the house happening to pass the new Sievert showroom dropped in to view the fixture display. As a result all of the old fixtures were taken out of the bungalow and replaced by new ones.

Sales from the Showroom

Another sale which may be traced to the showroom is in the building owned by an elderly lady. In talking with this lady, who had come into the showroom, Mr. McKeown discovered that she was looking for an investment for the money which would be left to her children. Her idea was to put in order an apartment building that she owns, but at the time of her first contact with Mr. McKeown she had asked only that a leak in the bend under the floor be repaired. Mr. McKeown went with the journeyman to the job, and after looking over the situation suggested to the journeyman that it might be possible while he was working there to sell two new closet combinations.



Looking across the Sievert display room. A lavatory and closet combination against a colored tile panel. Note the price card

When the journeyman had opened the floor he showed the lady the work to be done and pointed out that it was hardly worth while putting in the time if, when the work was finished, she would still have the old fixtures. An hour after he went on the job he phoned the shop to say that the customer had decided to put in the two new closet combinations.

The sequel to this installation was that although the property owner had put up no sign in the empty apartment, twelve people were in touch with her shortly desiring to discuss the possibility of renting.

The dominant idea back of the selling efforts now being undertaken is to sell quality merchandise. This idea is summed up in the neat card, which accompanies a panel display in

the window showing brass goods. This sign reads as follows:

FOR
TRUE VALUES
BUY
NATIONALLY KNOWN
TRADE MARKED
PLUMBING FIXTURES
AND ACCESSORIES

Commenting on this particular selling policy, Mr. McKeown says that in talking to a prospect, when the question of the higher price for better merchandise is brought up, he points out to the prospect that "Once we sell, we can't sell you again—and that explains the reason for the higher price. We could of course sell you cheap merchandise, but it would then be necessary for you to call on us for repairs or replacements."

Selling Quality

This selling argument has been effective not only in connection with the sale of accessories, but where an entire job is involved. A case in point is an old building on the South Side. The owner of this building is a close buyer and his first inclination would be to purchase the fixtures for the modernizing job he wants done from a direct to you house. Mr. McKeown, who says, of course, that you must always find out what sort of buyer you are dealing with, sold this owner on the idea expressed in the card in the window — that is, that it would be more economical for him in the long run to buy standard nationally known merchandise, parts for which can be purchased at any time, and behind which stand responsible organizations.

Bearing out his opening remark—that seeing is selling—Mr. McKeown tells of a prospect who came into the store, attracted by the display, and wanted to buy the cheapest closet combination on display. He surprised Mr. McKeown by deciding to take the best one on display without argument, merely because he could see it in contrast with the one in which he thought he was interested.

From a garage next door comes a prospect who, seeing the new display when he brought his car in to be washed, has left an order for a set of the shower curtains that are on display. A doctor, with offices near by in North Avenue, also attracted by the new display, has indicated that as soon as he is ready to remodel his home he wants a fine, chromium-fitted lavatory that is on display and which will sell for some hundreds of dollars.

Above: A display board of accessories, including shower curtains, glass, towel bars and toilet seat—all plainly price-marked. At right, the price card which is used throughout the showroom. The price appears, of course, in the white area

An Effective Display

Because of the interesting use made of the small space available a description of this display room will be of interest. Beginning on the right hand wall at the window there is first a panel of orchid figured tile, with green trim. This panel is wide enough, as the photograph will show, to permit the display of a pedestal lavatory and closet combination in white.

Next to this orchid panel there is one of mottled green tile with water lily border. Against this is displayed an expensive green lavatory with chrome legs and fittings, and a white closet combination.

The right wall is completed with a somewhat narrower panel, tan in color, and in contrasting shades against which a white lavatory is shown.

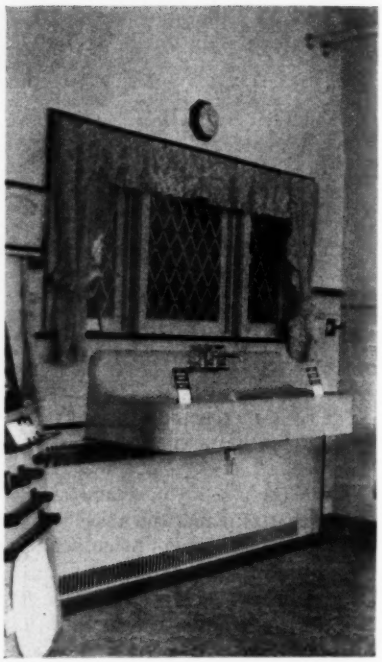
The back wall is one to catch the eye of the housewife. Above a tan double drainboard sink are three windows, casement type, with leaded glass. These windows permit light to flow into the office space directly back of the back wall of the showroom. The windows are draped in a yellow curtain material of a special waterproof texture. A card informs the prospect that these curtains may be ordered to measure, and gives price for the set. The wall around the windows and back of the sink is trimmed with yellow tile, with a neat blue and black trim. Beneath the sink radiators are concealed back of a yellow metal panel with slotted openings.

The left hand corner of the showroom is given over to a special three-piece bathroom set,

priced. The fixtures are in white, and the wall for this area is covered with a special composition tile—enamel on metal—with black porcelain accessories inset. Above the lavatory is a fine venetian mirror for a medicine cabinet.

In addition to his very complete fixture display, there is a large board on which are shown shower curtains in many colors and designs as well as accessories to be used in tile bathrooms. A wicker table and two chairs in keeping with the color schemes shown with the fixtures add a final touch to this well planned display.

The window extends down to a few feet from the sidewalk and just inside there is a large panel board of which there is a complete showing of brass goods, for various purposes, washers, valves, all placed around the card described above. Throughout the display fixtures and accessories are plainly priced with a neat card which calls attention in each case to the fact that the price covers "this nationally known trade marked fixture."



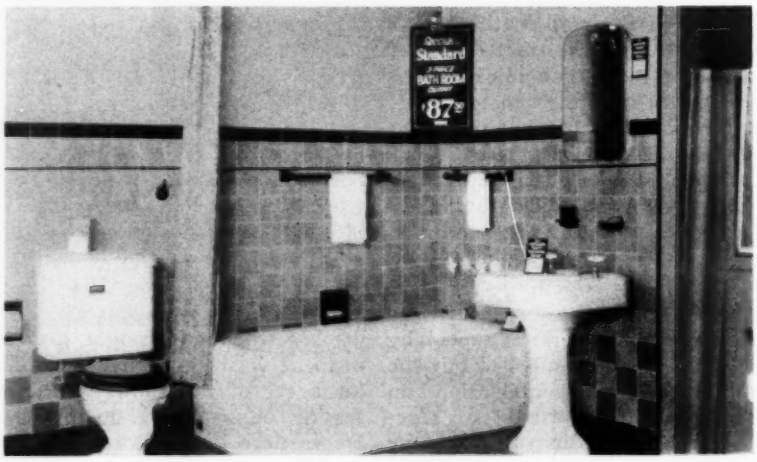
Above, right: A charming kitchen sink display. Middle: Fixtures against tile panels. Note furniture group. Below: A complete bathroom outfit—all priced

Pricing Sells Merchandise

This pricing of fixtures is playing an important part in merchandising today, and alert plumbing and heating contractors are taking the right step in getting into line with this practice. If it has been decided to open a showroom, that showroom must be made into an effective sales producer or else it will merely be an overhead drag. The Sievert showroom is one of the many in all sections of the country where this practice of pricing is being vigorously followed. It gives the prospective customer an opportunity to secure this important bit of information just as he or she secures it in any other retail establishment. As has often been said, to the shopper the lack of a price tag instantly suggests a high-priced item; plain pricing will do away with that thought. Any one looking at the fixtures in the Sievert store, and seeing the prices, can not but be impressed by the fact that here is merchandise value of a high order. The display is good looking and colorful; every piece shows its full beauty, which would without doubt suggest that here was "high-priced" quality. It comes, therefore, as something of a surprise, when the prospect glances at the price card and sees that the contrary is true.

The Sievert organization has done a number of interesting remodeling jobs. A DOMESTIC ENGINEERING photographer has taken photographs of a recent job, first securing pictures of the bathroom as it was before the job was undertaken, and then going in when the job was completed. These photographs will appear in an early issue. The job, as it happens, was one of those which was sold as a result of the opening of the new showroom.

Competitive merchandising is gaining headway in the industry and outsiders are benefiting thereby.



STOP - LOOK - LISTEN

FOR ONE WEEK ONLY!

We will install, complete, as described this nationally known Closet Combination at the unheard of price of only

Open Evenings Until Nine During This Special Sale

$25

INCLUDING INSTALLATION!

This is the angular base, twice fired, highest quality Vitreous china closet that is used in the finest homes. Gleaming white low set china tank, china flushing lever handle, polished nickel flushing elbow. The working parts are exceptionally well made to insure long life and positive action. A rich mahogany finished seat and cover completes the pleasing ensemble. This price also includes correct installation by licensed, courteous workmen, in accordance with the health code of the Chicago Plumbing Department.

BUY WITH CONFIDENCE - - -

Buy Nationally Known Fixtures - - From Men Who Know Plumbing!

Modern Plumbing Lightens Housework
Banish Bathroom Drudgery
Gain Bathroom Beauty

A bargain you cannot afford to miss! This complete Bathroom group as shown in the three illustrations. Closet, lavatory and bath for only

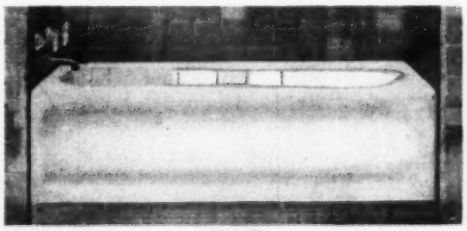
Deferred Payments If Desired

$84.20

REASONABLE PRICES ON INSTALLATION

THE LAVATORY

Of course you like this modern Pedestal Type Lavatory. Note the large size, 20 inches by 24 inches. Complete with Indirect China handle fixtures, convenient pop up waste control and heavy brass nickel plated trap.



THE BATH

This is the latest built in style, 5-foot size. Finished in the highest quality gleaming white enamel with full apron to the floor. There are no dirt catching areas under or around this tub to make bathroom cleaning a drudgery. Complete, as shown, with over rim supply, valves, waste and syphon.

Quality— Low Price

There is no doubt of the quality of our products as you have your choice of Crane, Weil McLain Co., Standard Sanitary Mfg. Co., James H. Clow Co., or Kohler fixtures. It is no longer necessary to sacrifice Quality to gain Low Prices!

You are invited to inspect our Modern Display of Plumbing Fixtures.

Good Plumbing is Essential to Good Health. Trust your plumbing work only to men trained and licensed in the art of plumbing. We are licensed and bonded by the City of Chicago. We Guarantee Every Fixture and Installation.

FETTES, LOVE & SIEBEN

4105 N. Damen Ave. — Lake View 7627

Specialists in Repairing and Remodeling Plumbing Systems

More Competitive Selling

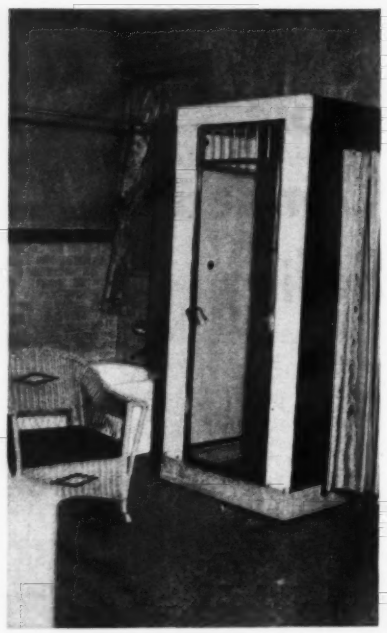
RECOGNIZING the fact that the public today is scanning prices with a critical eye, DOMESTIC ENGINEERING has sought examples of what plumbing and heating contractors are doing to meet this frame of mind. We do not mean to imply that people are any more desirous of buying cheap goods of poor quality. It is quite the contrary; prices in all lines have dropped and every retail outlet is trying to impress on the minds of its customers that the new prices represent a value as great and a quality as fine as it was at the prices being paid two or three years ago.

Plumbing and heating contractors have not been backward in adopting this type of merchandising. In the January 23 issue of DOMESTIC ENGINEERING, in this department of the paper, we told the story of what Moersch & Degnan, contractors in Escanaba, Mich., were doing to meet the conditions of competitive merchandising. The response from our readers has been instant. All manner of questions about this company's efforts have been asked us.

A Selling Showroom

Fettes, Love & Sieben, a Chicago firm of contractors located at 4105 N. Damen Ave., has also stepped into the breach in the competitive struggle with a vigorous effort to point out to the people of the community it serves that the plumbing and heating establishment offers a value that cannot be touched elsewhere, along with an established reputation and a service always at the command of the customer.

On the preceding page we showed an advertisement that ran the full height of a local newspaper page. Prices were strongly featured, and actual photographs of



James W. Fettes, past president of the Chicago association and a member of the firm, feels that this type of merchandising has produced business for the firm, and will continue to do so.

As he points out, pricing, both in the showroom and in advertising, has become a necessity in order that customers and prospects may know just how great the value is that they can secure in the plumbing and heating store, and will do something to eliminate the impression that catalog merchandising, just because the price factor is played up, is a "better buy" for the customer.

Above: Shower cabinet and tub in corner, with tile. Below: The bathroom outfit seen from the street, each item priced as well as the outfit

the closet combination, the tub and the pedestal lavatory shown. This was followed by the smaller advertisement which is shown on the second page of this story. This advertisement, by the way, was laid out in the offices of DOMESTIC ENGINEERING. It was about one-third larger than we show it.

Naturally, the result of this type of advertising has been to bring people into the store, and to bring inquiries to be followed up. Several bathroom replacement jobs can be traced to this advertising. It is not possible always, of course, to say that a certain job came from a certain advertising effort, but

The showroom is modern in layout and gives the prospective customer a splendid selection of plumbing and other household appliances.

The floor of the showroom is below the level of the sidewalk, so that the passerby has a bird's-eye view of every piece of equipment on display, the window itself being used for the display of smaller items, with the one exception of the refrigerator, which is at one side of the window space.

Looking in through the window, the prospect sees the merchandise and can read most of the prices without difficulty, particularly that which is placed on the bathroom outfit which is in the foreground, and which is shown, just as the passer-by sees it, in one of the photographs. Down one side of the room — the left — is a display of lavatories. Down the other is a

display of closet combinations. Two kitchen sinks are at the right rear, each in full view. A corner tub is installed at the left rear, with colored shower curtain. Alongside of it is a shower compartment.

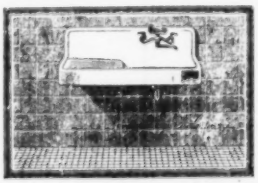
The price cards are prominently displayed on each fixture or group, and the price on the display board of closet seats could be read easily at a distance much greater than the depth of the showroom. Showrooms

Do You Know?

You can get complete bathroom fixtures as low as

$55.25

And liberal time payments, if desired, on any fixtures bought in our Ravenswood store.



AS SHOWN

This nationally-known 52-inch, Grade A Sink, fully guaranteed, only

$34.50

Why it is to your advantage to buy here:—

1. We guarantee all material and workmanship for one year. No quibbling.
2. We are near YOU, in your own neighborhood.
3. We can refer YOU to hundreds of satisfied customers in Ravenswood.

For Plumbing Repairs Tel. Lakeview 7627

See It in Our Showroom

4105 North Damen Ave.

FETTES, LOVE & SIEBEN

We Give Tickets — Ask for Them

For Plumbing Repairs Tel. Lakeview 7627

Another competitive ad, showing values at low prices

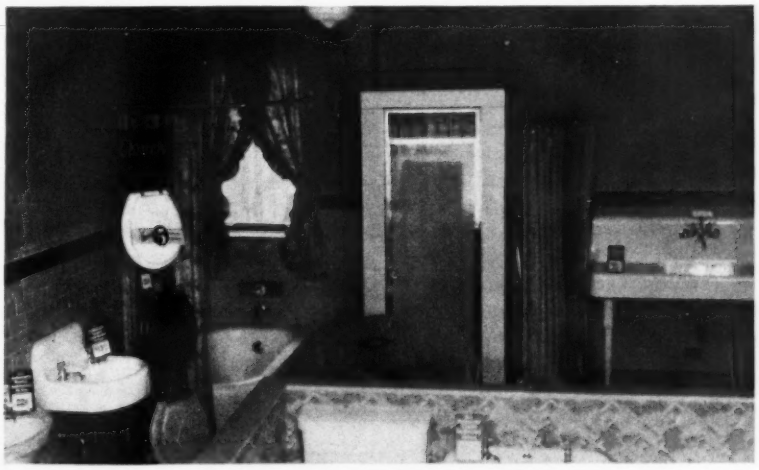
This is the width of the building owned by the firm

like this, in increasing numbers throughout the country, are carrying their silent message of quality at reasonable prices to countless thousands of people, and will without doubt prove to be a big factor in successfully meeting the outside competition.

Strong Competitive Copy

On the last page of this section we show a half-page advertisement which was also prepared in the offices of DOMESTIC ENGINEERING, and the following from Ed. B. Thompson, general manager of the Franklin Plumbing Co. of West Frankfort, Ill., will indicate just what this firm has done to take a lead in competitive merchandising:

"We have to attribute a certain amount of success of our advertising plan to the organization of the Egyptian Supply Co., as they put forth untiring efforts to make this event a success with us, as nothing of this kind has ever been brought about or displayed in southern Illinois.



Above: One corner of the display. At left: The offices of the display room

"We are therefore enclosing an advertisement which we ran in the newspaper and also a bill which was distributed to every home in West Frankfort. We can truthfully say that the expenditure in putting on this campaign has been paid many times, and has given us a light to further advertising, as we are sold on this work.

"We cultivated our original idea from a friend who has a chain of stores, and from watching the advertising campaigns. We knew we had to put out some leaders to bring the trade into our store.

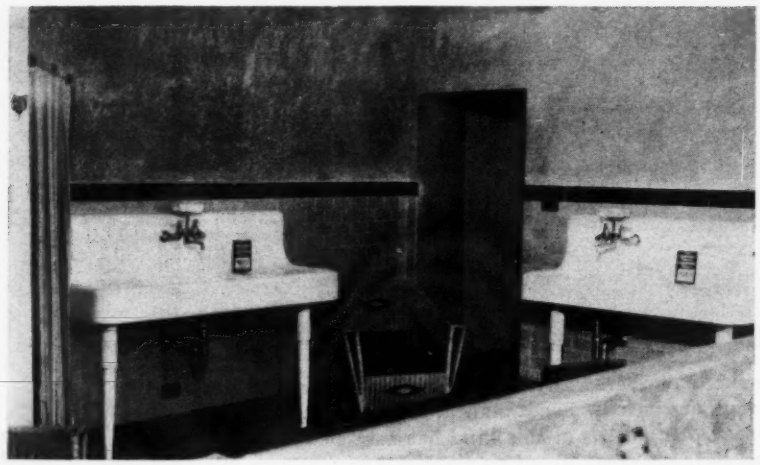
"We first cleaned house, re-decorated, and put in several complete bath room booths, distributed specialties throughout our showroom. In order to add color to the scheme we used crepe paper of many colors for the background. We used one window for plumbing fixtures, the other for specialties such as closet seats, gas heaters, tank balls, tank ball cocks, plungers, portable showers, and the like. We priced everything in plain figures. After this was accomplished, we hired about a dozen youngsters to distribute the handbills to every home in our town.

"The Turning Point"

"Two days later, we ran the same set-up in our local daily newspaper, and from then on the turning point came. The prospect came in for a cheap toilet seat, which, of course, was the cheapest thing we could buy, and in most cases we showed them the better seat, advising them it was made by a nationally-known manufacturer, and it was sold.

"The same thing applied to our bathrooms. The enamelware was of a leading manufacturer, but the trimmings were of the very cheapest construction, and of the bathrooms we sold, there were only two of the cheaper kind. It has been an entering wedge in selling colored enamelware as well as showing the general public in our town that we can compete against mail order house competition if we are requested.

"When you set a cheap bathroom outfit on one side of the partition, and a better kind on the other, and there is only a matter of several



Two kitchen sinks, priced. The door in the corner leads to the office

dollars difference, we know that the better bathroom can be sold. We of course had some odds and ends which had accumulated in our shop and which we moved in this campaign.

"We did not misrepresent one item, but told our prospects the truth about the merchandise. On some items, which we advertised, we sold close to our cost, but invariably after we got the prospect into our establishment we always sold a better grade, if he gave us encouragement that he was interested.

Getting New Prospects

"Large real estate owners with whom we have never been able to do any business came to our showroom where we could talk with them, and we might say that we have many new prospects on our books. Many people, as a rule, are interested only in the price of the bathroom fixtures, and since they have no conception of what labor or roughing in material it takes to hook on these fixtures, we, in most cases, have a contract to furnish the fixtures complete, and then give them a contract on the roughing in complete and hook up the fixtures.

"This advertisement has also given us a lot of unexpected repair work. We have set aside regular advertising, and fully believe that the plumbing industry should get behind a movement of this kind.

"We are strong for nationally advertised goods, and believe in the 'Manufacturer - to - jobber - to - dealer' plan of distribution."

Remodel Your Plumbing
GREAT SAVINGS ASSURED NOW
NATIONALLY ADVERTISED MERCHANDISE

Toilet Seats
Special at
$1.98

Jumbo Pitcher Pump
Heavy Pattern
$1.95

Tank Balls
19c and up
Pure Gum Rubber
All Sizes

Largest Assortment Plumbing, Heating, and Water Works Supplies in Egypt.
No Waiting, No Delay, No Freight, No Drayage, We Have It In Stock.

Bath Rooms as low as $54.00 complete ——— On Display
Visit Our Plumbing, Heating and Accessories Display—No Obligations

White and Colored Bathrooms
Fine homes all over the country are being made more smartly distinctive and beautiful with color. Colored ware is not expensive, but modest in price. We are just awaiting a chance to tell you about it.

20x30 FLAT RIM SINK
With heavy nickel plated strainer. Special at $4.95
One to a Customer.

Time Payments If Wanted.

Heating Plants That Will Heat
Save money now by letting us give you an estimate on your requirements. For economy on domestic hot water, we have automatic water heaters as low as $29.50 with an enameled jacket.

Vitreous China Closet Outfits
With all trimmings to floor, chromium plated, as well as seat, complete. Extra Special $19.00

A written guarantee bond on every heating installation

A flock of Fords and a gang of men on the job any time. We have a complete plumbing, heating, and ventilating engineer on our staff. We prepare the blue prints and details for your approval. May we add you to our list of satisfied customers?

Call us for pipe, fittings, and repair work — We cut and thread pipe to length, and deliver.

20x30
ROLL RIM SINK
Special at
$7.95

GAS HEATER
full size—Price
$5.95
Double Coil, special construction.

SINK FAUCETS
$4.75 and up

Plumbing — Heating Sheet Metal Work

Ed. B. Thompson, Pres. & Gen. Mgr.

FRANKLIN PLUMBING CO.

Phone 36
309 E. Main Street,
West Frankfort, Ill.

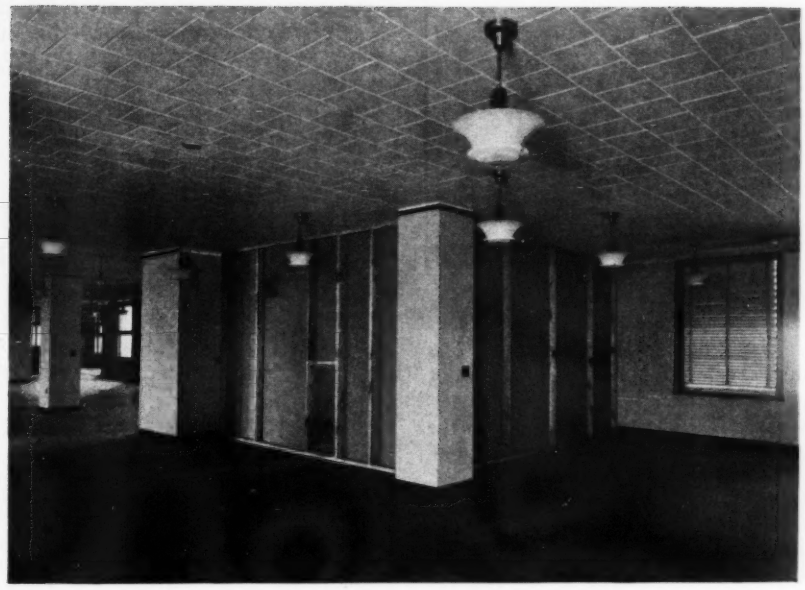


Fig. 1—Exterior of test room

ROOM COOLING

is

Studied

SUNSHINE through the window glass is apparently the most important factor to contend with in the cooling of a room. At times it may account for as much as 75 per cent of the total cooling necessary. Because of the importance of the sunshine, cooling systems should be zoned so that the side of the building on which the sun is shining can be controlled separately from the other sides of the building. Consideration should also be given to shadows from nearby buildings which may cover part of the sunny side of a building. If buildings were provided with awnings so that the window glass were shielded from sunshine, the amount of cooling required would be reduced and there would also be less difference in the cooling requirements of different sides of the building.

These are some of the conclusions which were arrived at as a result of studying the cooling requirements for the Union Guardian office building which is located in Detroit, Michigan.

The work was begun by the investigators with the idea in mind that there is a tendency in ventilating system design to copy previous work without an adequate check-up of actual performance. A great many mistakes could doubtless be avoided, particularly in a relatively new field such as building cooling, if design methods were carefully correlated with field experience.

The tests described in this paper were made because the authors felt that some actual results of the performance of a building cooling system would be of considerable value to designers of such systems. Because the tests were conducted under conditions which approximated ordinary operating conditions, it was impossible to control some of the factors as accurately as would be done in a laboratory test, and this should be borne in mind in making use of the results.

The work was done in the Union Guardian building in Detroit as shown above. It is a 40-story building of which the lower 16 floors and two basements are

This article contains excerpts which were taken from a paper which was presented at the thirty-eighth annual meeting of the American Society of Heating and Ventilating Engineers in Cleveland, by J. H. Walker, S. S. Sanford and E. P. Wells

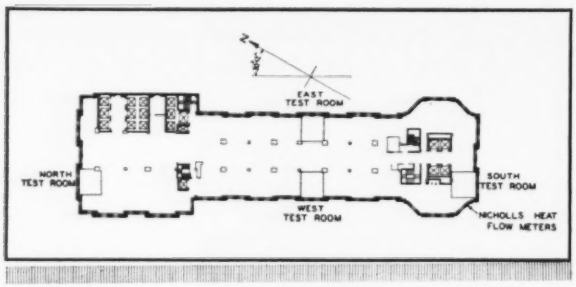


Fig. 2—Floor plan of building showing test rooms

artificially cooled. The building is of more or less typical office building construction having brick walls, backed up with hollow tile, and with two large steel-sash windows per bay. The heating as well as the cooling requirements are taken care of by a fan system. Air enters each room through one or more ceiling diffusers which discharge horizontally in all directions except towards the windows and the exhaust is taken care of by grilles in the office partitions through which the air finds its way to the corridor and thence to the two recirculating risers. The system is zoned and each zone is equipped with a variable speed fan, making it possible to control the temperature on different sides of the building in summer by varying the volume of air supplied.

The maximum weather conditions in Detroit for which cooling systems are designed are approximately 95 F dry bulb and 75 F wet bulb. The temperature carried on the office floors varies from 73 F dry bulb and 60 F wet bulb to 79 F dry bulb and 64 F wet bulb, depending upon the outside temperature. The temperature in the lobby is about one degree higher than in the offices and that in the basements about two degrees lower than in the offices.

The various factors which comprise the cooling and dehumidifying load of a building can be listed as follows:

I. Load due to weather conditions:
   1. Heat transmission through walls and roof.
   2. Heat transmission through window glass.
   3. Sun radiation through window glass.
   4. Heat and moisture in make-up and leakage air.

II. Load due to occupancy:
   5. Heat from lights.
   6. Body heat and moisture from occupants.
   7. Heat and moisture from machinery, piping and processes.

The tests herein described were confined to one factor in the total cooling load of the building, namely, that due to external weather conditions, and involve items 1, 2 and 3, which are the items of perhaps the greatest uncertainty in cooling calculations. The studies comprised several phases as follows:

A. Determination of cooling requirements of the four exposures of the building.

B. Measurement of the flow of heat through the building wall.

C. Studies of the temperatures of the wall.

D. Studies of the overall cooling load of the building.

Determination of the Cooling Requirements of the Four Exposures of the Building

The cooling requirements of the four sides of the building were determined by taking four rooms of identical size and exposure on the different sides and measuring the temperature and quantity of cooled air which was required to maintain the rooms at an equal and constant temperature throughout the working day. These rooms were specially constructed test rooms on the twelfth floor of the building and were located as shown in Fig. 2.

They were approximately 14 ft. 8 in. wide and 17 ft. deep, taking in almost the width of a bay of two windows, and had walls made of ½ in. rigid insulation nailed to wooden studding. The exterior of one of the rooms is shown in Fig. 1.

The interior of one of the test rooms is shown in Fig. 7, and a section and the elevation of the outside wall in a test room is shown in Fig. 3. The windows are equipped with Venetian blinds which were adjusted during the tests so as to cover the upper half of the window, with the slats in a horizontal position. The windows are of plate glass ¼ in. thick, and the window frames and sash are of steel.

In the test rooms an 8 in. circular sheet-iron duct with a butterfly damper in it was attached to one of the two ceiling openings and all of the air was delivered to the room through this. The duct extended to the floor and back toward the ceiling as shown in Fig. 7, and the volume of air was determined by an anemometer held in the outlet of the duct.

The temperature of the entire twelfth floor was maintained as nearly as possible equal to that in the test rooms. The temperature above the ceiling ranged from 72 to 76 F and that below the floor of the test rooms ranged from 74 to 76 F. Except for the error caused by the difference in temperature between the test rooms and the space above and below, the heat removed from the room, as indicated by the quantity and temperature rise of the air supplied, should be substantially equal to

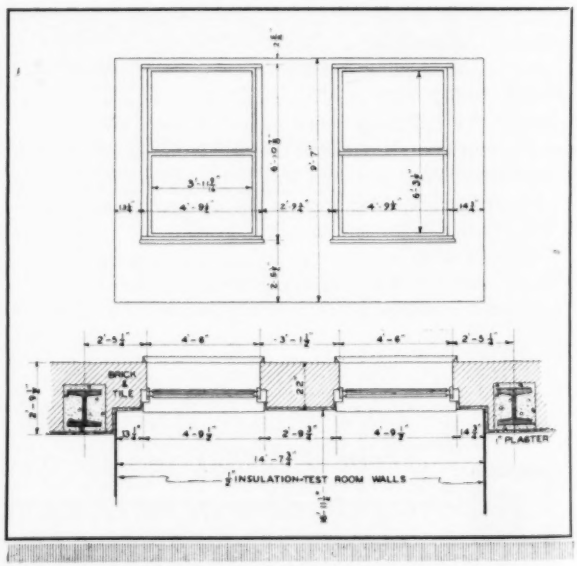


Fig. 3—Elevation and section of wall, west test room

the heat entering the room through the exposed side. In calculating the net amount of heat entering the test rooms, a correction was made for differences in temperature between the test rooms and the surrounding space in the building. Obviously, no extreme degree of accuracy can be claimed for these tests. The air temperature through the room varied somewhat as did the surrounding temperatures and there were other small sources of error; but, bearing in mind that they are field tests and not laboratory tests, the method used should be acceptable.

It was, of course, anticipated that a large portion of the load would be due to sunshine through the window glass and provision was therefore made to measure the solar radiation, with the idea of arriving at some correlation between solar radiation and cooling load.

In order to determine the solar radiation entering the rooms through the window glass, observations from within a room were made with what is known as a pyrheliometer with the window alternately open and closed. These readings indicated that from 12 to 20 per cent was cut off by the glass. Of the radiation which does not pass directly through the glass, part is absorbed and part reflected. Of that which is absorbed, part is delivered by the glass to the room. It was therefore assumed that of the total solar radiation, 93 per cent was delivered to the room and the other 7 per cent reflected or transferred by the glass to the outdoor air.

Results of Tests

The results of the cooling tests in the four test rooms for Sept. 11, 1931, are given in Fig. 4. Similar tests were made on other days but the data for Sept. 11 are especially important because this was a day of continues bright sunshine. In Fig. 4 the data are plotted separately for each test room. The *actual cooling load* is the rate of removal of heat from the room by the cooling air as determined by the anemometer readings and the rise in temperature of the air in passing through the room. As defined here it did not include the dehumidifying load due to moisture from people and from outdoor air. *Conduction, glass* is the calculated rate of heat transmission through the glass in the two test room windows based upon Weather Bureau temperatures and observed room temperatures 5 ft. from the floor. The U. S. Weather Bureau station is located two blocks from the Union Guardian building. *Sunshine through glass* is the calculated rate at which solar radiation enters the test rooms through the two windows. It was obtained by reducing the solar radiation as observed out-of-doors by 7 per cent and multiplying this by the area of sunshine on a plane normal to the sun's rays. The *net calculated load* is the algebraic sum of the heat entering the room by conduction through the glass, solar radiation through the glass, transmission through the outer wall, heat from the observers during the few minutes they were in the test room and heat entering or leaving the test room because of difference in temperature between the room and the surrounding space in the building.

It is noteworthy that the amount of heat entering through the wall was too small to plot in Fig. 4. The heat meter readings for this day on a southerly-exposed wall indicated that the flow of heat from the wall to the

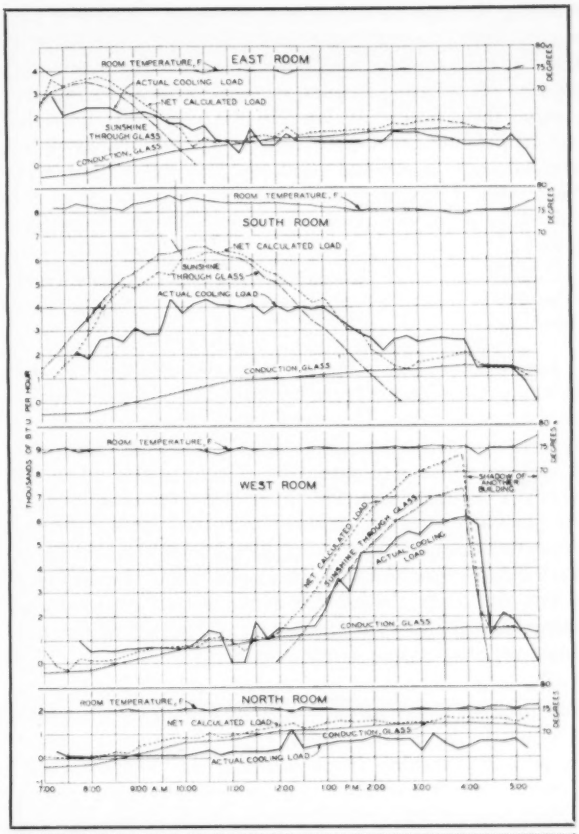


Fig. 4—Calculated net amount of heat entering the four test rooms compared with the actual amount removed by cooling

room was only about 1.7 Btu. per square foot per hour when the room temperature was 75 F. On this basis the heat from the wall to the room was calculated to be 125 Btu. per hour in the east and west rooms and 135 Btu. per hour in the north and south rooms, these rooms having a slightly larger wall area. The heat from the wall was assumed constant although it did appear to decrease somewhat during the day.

No allowance was made for infiltration. On the day of the test the wind velocity did not exceed 12 mph and it was assumed that the pressure in the test rooms was sufficient to prevent infiltration. Air which may have leaked outward was assumed to have the same temperature as that leaving the room through the outlet and was included on that basis in the computation of the cooling load.

Discussion of Results

The rapid fluctuation in intensity of solar radiation and heat effect may be attributed partly to changes in atmospheric conditions and partly to errors in observation. The seasonal variations in solar radiation do not appear to be great if days having a clear bright sky are compared. Readings taken during the middle of the day over the period from August 15 to November 13 show little change. Seasonal variations in the position of the sun do, however, have an effect on the solar radiation entering through the windows. On June 21 with the sun high in the sky the normal area of sunlight

entering through a window is a minimum. Likewise the normal area is a maximum on December 21. It follows that flat roof surfaces of a building receive the maximum amount of radiation in June whereas walls and windows receive their maximum later in the year. At noon in the latitude of Detroit the amount of heat received by vertical and horizontal surfaces on June 22nd and September 11 expressed as a percentage of that received by a surface normal to the sun's rays is as follows:

	Vertical Surface	Horizontal Surface
June 22.....	30.6%	95.1%
Sept. 11.....	60.8%	79.3%

Fig. 4 shows that solar radiation through the window glass accounts for the largest part of the cooling required in the test rooms. The north room which received no sun needed a very small amount of cooling compared with that required in the other rooms. The effect of sunshine is especially evident in the west room where the amount of cooling required increased rapidly shortly after the sun began to shine in through the windows. In the latter part of the afternoon when the building across the street shaded this room, it was necessary to reduce immediately the amount of cooling air to prevent the room temperature from falling.

The large amount of heat entering a building through the windows in the form of solar radiation suggests that it would be wise to use some type of awning or shield to prevent sunshine from reaching the window glass. Venetian blinds and other types of inside window shades do not prevent solar radiation from entering through the glass although they doubtless do reflect some of it out again. Tests made on two successive days in the latter part of September, one day with the Venetian blinds covering the whole window and with the slats closed and the other day with the blinds up, entirely exposing the windows, showed that the rooms required as much cooling with the blinds as without them. It is possible that further tests would show that the blinds do make some difference but less than commonly supposed.

As a matter of interest to determine the absorption of solar radiation by double windows, pyrheliometer readings were taken through two panes of ¼-in. plate glass spaced 1¾-in. apart. The panes of glass were as clean as it was possible to make them. The absorption was 16.7 per cent through one pane of glass and 37.5 per cent through two panes. This indicates that double windows are of value in the summer in reducing the solar radiation entering through the windows as well as in reducing the amount of heat entering by conduction.

In all test rooms the actual amount of cooling required was less than the net calculated amount of heat entering the test rooms. In general the discrepancy was greater when the sun was shining in through the windows than at other times indicating that a large part of the error was in calculating the solar radiation delivered to the room. There are several possible explanations for this:

1. The window glass in the test rooms was not perfectly clean, whereas pyrheliometer readings taken to determine the absorption of solar radiation were made with clean glass. It is thus possible that the assumed loss in solar radiation in passing through the glass was too low and that the actual amount of heat delivered to the rooms was less than calculated.

2. During the tests the blinds were let down from the top as far as the meeting rail of the windows, but were opened so that the slats lay in horizontal planes. This in general prevented the sunshine entering through the upper sash from striking the floor or walls of the room. The area of sunlight was calculated as though the blinds had not been there. It is possible that some of the heat was reflected out through the glass by them.

3. The temperature of the window glass is increased by the absorption of solar radiation and therefore the transmission of the heat from the outdoor air through the glass is decreased and was probably less than calculated.

4. It is probable that part of the solar radiation striking the floor and interior walls was absorbed by them and transmitted to the spaces outside the room.

The lag in the cooling load in the south test room after the sun stopped shining through the windows was doubtless due in part to the heat being given up to the room by the floor and walls on which the sun had been shining. It will be noted from Fig. 4 that in the south room the temperature was above 75 F. during the time the sun was shining in

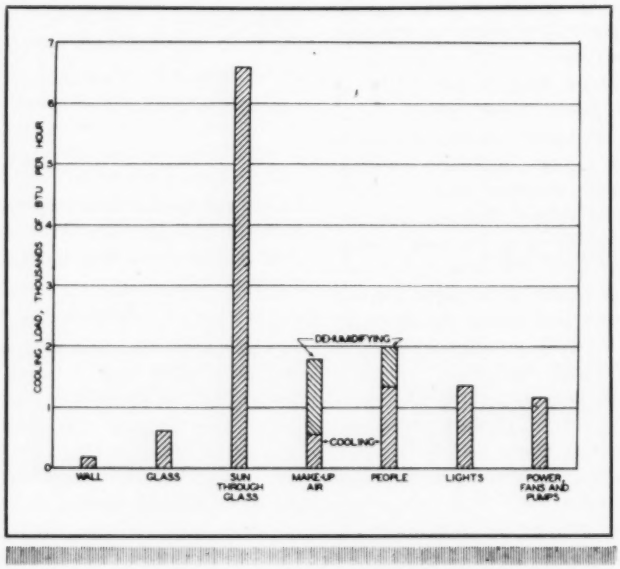


Fig. 5—Division of cooling and dehumidifying load, typical south bay

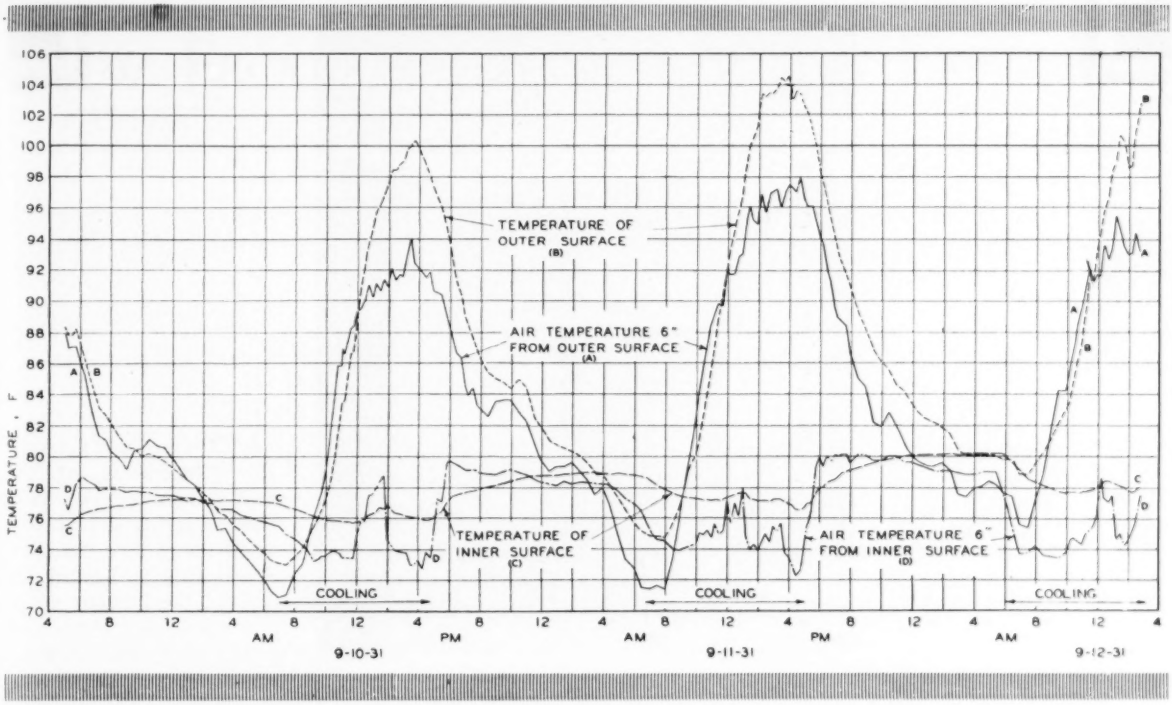


Fig. 6—Wall temperatures during heat meter tests

through the windows. This is because the part of the system serving this room did not deliver air of a sufficiently low temperature nor enough air to cool this room to 75 F.

The lowest air inlet temperature for the day in this room was 64.5 F. whereas in the west room a temperature of 59 F. was reached. The fan for the south end of the building ran at full speed from 9:30 a. m. to 1 p. m. but the air pressure in the supply duct was not great enough to supply sufficient air through one diffuser opening to handle the cooling load. If a temperature of 75 F. had been maintained in the south room the actual cooling load would have been considerably higher.

The heat transmitted through the glass by conduction was calculated from the Weather Bureau temperatures. The temperature varies on the different sides of the building but these temperatures were not considered sufficiently accurate to use in the calculations.

The calculated heat flow through the outside wall into the test rooms based entirely on inside and outside temperatures varied from approximately —80 Btu. per hour (flow outward) at 7 a. m. to + 315 Btu. per hour at 4 p. m. when the outside temperature was a maximum. Such calculations assume that equilibrium has been established through the wall. This assumption is, of course, incorrect in this case because the temperatures do not remain constant long enough to establish equilibrium. In view of this, the assumption used in this paper of 125 to 135 Btu. per hour through the outside wall of the test rooms based on heat meter readings seems reasonable. At any rate, the heat entering through the wall is small compared with that through the windows, the calculated transmission through a test room wall being approximately 16 Btu. per hour per degree difference and that through the windows 75 Btu. per hour per degree. Just before 4 p. m. when the solar radiation entering the west test room was at a maximum, the heat through the wall accounted for only about 2 per cent of the heat being removed fro mthe room by the cooling air.

In the west test room under peak conditions air had to be supplied at the rate of about 375 cfm and at a temperature of 59 F in order to maintain a room temperature of 75 F. This amount of air is equivalent to six changes per hour in the office which would occupy the entire bay.

The results obtained in the test rooms cannot be considered typical of the total load of the building because of several factors:

1. Whereas the temperature of the air inside the test rooms was kept fairly constant, the inside temperature of the building as a whole varies with the outdoor temperature, being permitted to rise as high as 79 F during the hottest weather.

2. The test rooms had no lights and practically no occupants, while the building load was increased by the removal of heat and moisture from the occupants, heat and moisture from outdoor air taken into the system and heat from electric lights, fans, pumps and miscellaneous motors. The amount of outdoor air was 10 per cent of the total amount circulated except when the outdoor wet-bulb temperature was below 60 F when the amount of fresh air was increased to 50 per cent of the total and except also for an outdoor temperature of over 92 F when the fresh air intake was often closed.

3. Two basements were air conditioned, which were unaffected by outdoor temperature or sunshine.

Measurement of Heat Flow Through Wall

The heat flow into and out of a section of the wall on the south exposure of the building was studied by means of two heat flow meters placed directly opposite each other on the two surfaces of the wall. The wall at this

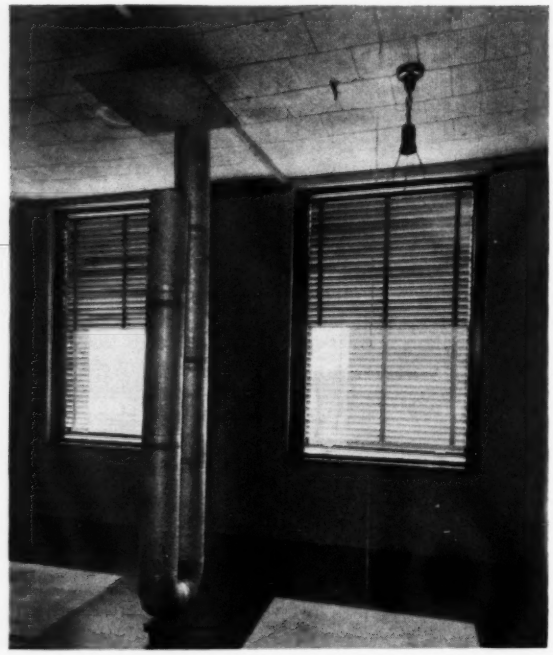


Fig. 7—Interior of test room

point was made up as follows starting at the interior surface: plaster, 1¼-in.; tile, 3¾-in.; air space, 5¼-in.; tile, 3¾-in.; and brick, 9 in. The construction of the walls between the windows in the test rooms differed in that two courses of brick on the exterior were backed up solidly with brick and tile and one inch of plaster with no air space in the wall.

A study of Fig. 6 indicates that it takes many hours for heat to pass in through the wall. The maximum absorption by the outer surface occurs from noon to 2 p. m., whereas during the night the inner surface of the wall delivers heat to the room at an increasing rate up to 7 a. m. when the air-conditioning system is started. The temperature of the inner surface of the wall rises during the night above the temperature of the air in the room indicating that this surface must be receiving heat from the interior of the wall.

Fig. 6 shows the effect of the windows on room temperature. At 5 p. m. when the air-conditioning system is shut down and when the outdoor temperature is still high the indoor temperature rises rapidly to a point above the temperature of the inner wall surface, then drops during the night to a point below the temperature of the inner surface of the wall as the outside temperature drops. Thus the outdoor temperature acting through the window glass swings the indoor temperature up and down somewhat independently of the wall temperature.

It frequently occurs that heat is flowing into a wall from both surfaces at the same time or flowing out of a wall from both surfaces at the same time. The wall gives up heat to the outdoor air all night but after midnight when the room is cooler than the inner surface of the wall, heat is also being delivered to the room. Likewise during the day, if the indoor temperature is allowed to rise above the temperature of the inner surface, heat will flow into the wall from the room at the same time that the outer surface is absorbing heat.

It is rather remarkable that the wide fluctuations in the temperature of the outer part of the wall have so little effect on the temperature of the room side of the wall. The temperature 1 in. beneath the interior surface varied only 2 deg. in 24 hours. The temperature of the steel column is even more stable, varying only 1 deg. in 24 hours. In the floor at a point 1 in. beneath the surface, the 24-hour variation was ½ deg. At a point 8 in. deep, the variation was 1 deg. All of this shows that the temperature of the interior building structure is very stable and that if it were not for the disturbance caused by heat entering through the window glass, temperature regulation in the summer would be a simple matter in an air-conditioned building.

Another striking fact is the utter insignificance of the wall conduction in the total cooling and dehumidifying load.

Fig. 5 shows the relative magnitude of the various components of the cooling and dehumidifying load as calculated for a typical bay having the exposure of the south test room at a time when the sun radiation effect is near its maximum. The following assumptions were made:

Indoor dry bulb, 75 F; wet bulb, 62 F.
Outdoor dry bulb, 85 F; wet bulb, 72 F.
Air supply to room, 500 cfm.
Make-up, 10 per cent of air supplied.
Normal occupancy of room, 5 people.
Two 200-watt lamps, two more not in use.
Power for fans and pumps, average per bay for building.

Of all the factors, the heat entering through the wall is of least importance while the solar radiation through the glass is the most important factor. It should be pointed out that solar radiation through windows is not a constant and that at other times during the day the amount is less than shown here. The heat from electrical power used by fans and pumps was obtained by assuming that 90 per cent of the heat equivalent of the electricity becomes a part of the cooling load.

All of the data shown in Fig. 5 should not be taken as the average for the building because the solar radiation, number of lights, and number of people will vary in different parts of the building. Also there are other sources of heat not listed here such as infiltration, hot water piping, and miscellaneous electric motors.

(Continued on Page 103)

NEW PRODUCTS DOMINATE BIG EXPOSITION

Show Way to Better Heating, Cooling and Air Conditioning

IF YOU sell heating and air conditioning products and were not at the exposition in Cleveland last week you overlooked an opportunity. Those readers who were there not only found many new products but also confidence and enthusiasm. The purpose of this article is not merely to report a big exposition but to give to all of our readers a better appreciation of the fact that many manufacturing companies have prepared new products to appeal to the buyer.

These companies have taken advantage of the slowing down of business to redesign their products, usually giving greater service at smaller price, and almost invariably appealing to the consumer's tastes or desires in a more direct fashion.

Air conditioning equipment of many different kinds naturally aroused more interest and enthusiasm but hand in hand with the surprising developments in this particular field are the improvements which heating companies have made.

Air conditioning for homes and offices has been taken up by dozens of manufacturers. Whether the cooling medium is a refrigerant, cold water, cooled air, ice or chemicals, is not important today. The facts are that real development work has been done in all of these lines.

Even the question of whether cooling has been placed on a scientifically exact footing took on less importance as visitors crowded the different booths to learn of the new standard of comfort both in summer and winter which most of these plants are designed to provide. In other words, comfort in summer is taken by many as a relative rather than an exact phrase. A person must be warmed to a certain minimum in winter time but in summer comfort is obtained at many different temperature stages depending upon the outside weather conditions.

Ready for New Business

The surprising display of energy and courage shown by so many manufacturers in developing new products was an inspiration to every visitor. Business might have been below normal outside of the exposition hall but inside everyone found the feeling that heating and air conditioning manufacturers have been using their slack moments to bring out products upon which a buying movement could be started and more business secured.

An adequate report of these can not be given in one issue so that readers of DOMESTIC ENGINEERING will find detailed explanations of many of these items in coming issues. In this way, we can bring to every reader information which led to the enthusiasm shown by those who visited Cleveland last week.

TWO NATIONAL SOCIETIES MEET IN CLEVELAND

> *Big Exposition*

THE FIVE-DAY, 38th annual meeting (with four days of technical sessions) of the American Society of Heating and Ventilating Engineers, the 27th annual meeting of the American Society of Refrigerating Engineers and the exposition in which both participated, ended in the city of Cleveland on January 29. Although the technical sessions of these two societies were not conducted in the same hotel, there was quite a similarity in the subjects discussed with the A. S. R. E. program leaning a little more to air conditioning and the A. S. H. V. E. program more to heating, codes, testing and the acquiring of exact scientific information.

The registration at the meetings was not as large as in some previous meetings (registration 726 at the A. S. H. V. E.) but there were more exhibitors than at the first exposition in Philadelphia two years ago. The 234 exhibitors represented nearly every phase of heating and air conditioning, humidifying, air filtration and air movement and control of these factors.

Roughly, the papers and discussions were devoted to heating, cooling, indoor air and acoustics 55 per cent, among which two articles related to radiant heating; piping and related subjects 10 per cent; conductivity 10 per cent; cold storage 5 per cent. All of these papers were prepared by engineers who are outstanding authorities, with the result that the latest in engineering developments were unfolded.

Two University professors from adjoining states were elected to two of the most important offices in the society in the place of two manufacturers who held these offices during the past year. F. B. Rowley, head of the Engineering Experiment Station of the University of Minnesota, Minneapolis, Minn., is the new president taking the place of W. H. Carrier, retired. G. L. Larson, professor of steam and gas engineering, chairman of the department of mechanical engineering, University of Wisconsin, Madison, Wis., will direct the activities of the research laboratory in the place of C. V. Haynes, Hoffman Specialty Co., retired.

The first award of the F. Paul Anderson gold medal was made to W. H. Carrier for "distinguished scientific achievements in heating, ventilating and air conditioning."

W. H. CARRIER

Arouses Industry <

ENGINEERS REVEAL PROGRESS MADE IN AIR CONDITIONING

F. B. ROWLEY

UNDER the direction of President W. H. Carrier, who also presided at one of the meetings of the A. S. R. E. and who is past president of that society, the A. S. H. V. E. discussed many subjects of vital interest and of much import not only to engineers but to the public, in the maintenance of comfort and health. Much of the discussion was given to codes and testing for the skill of the engineer depends upon being able to recognize and apply slight differences and it is the accurate determination of differences and physical manifestations upon which the engineering depends.

It was a week of intense engineering thought, speculation, prediction, investigation and exchange of engineering information. These meetings probably are more significant and, properly interpreted, mean more to the industry of heating and air conditioning than any previous meetings of these societies.

The exposition and the technical sessions of the A. S. H. V. E. and A. S. R. E. from one point of view might be interpreted as a competition between convected heat and radiant heat. Of the score of papers presented in the A. S. H. V. E. sessions, eight might be interpreted as relating more to convected heat and three to radiant heat. At the exposition, radiant heat by itself was represented by only one or two items.

Some leaders in the industry voiced an emphatic note of warning. The proclaiming of air conditioning as a billion dollar industry, they said, is the worst thing that could be done. They want to save the air conditioning industry from going through the throes that for years handicapped the oil burner industry. Large amounts of money will be made in air conditioning but these men emphasize the need for a proper balance between sales ability and engineering ability. They stated that the greatest menace to the future of air conditioning will be those who, in spite of warnings, continue to act on the belief that there is a billion dollars in the offing to be grabbed by the glib salesmen and the fly-by-night manufacturer.

Their universities are rivals in athletics but Prof. F. B. Rowley of Minnesota and Prof. G. L. Larson of Wisconsin will work together this coming year for the A. S. H. V. E.

>

G. L. LARSON

RETAIL ADVERTISING SERVICE

THIS year is demanding more aggressive and constant merchandising. The copy on these two pages is designed to fit into the "Spend for the Home in 1932" campaign, although we go back to the regular type of copy we have been carrying in this department.

MakeTheir Home a Social Center

MORE and more social affairs are centering in the home. Give your young people the kind of home equipment that will make them glad to have their friends in. They may not say anything—but a bathroom that falls short of their ideals may make them reluctant to entertain at home. Freshen up the bathroom with tile, with color in fixtures or shower curtains. Your investment here will add a value—and a comfort—to your home far beyond the cost. Phone us for advice.

(In this space Your Name, Etc.)

For one-column space

The Home Is Coming Into Its Own

To a large extent, we have put the feverish running of the last ten years back of us. We are looking for entertainment to the home—particularly the young people. Are the home services in your house up-to-the-minute? Young people like to be proud of things that are theirs—the home included. Will the young daughter of the house feel content with the bathroom her guests must use? We'd like to tell you about some modernized bathrooms we've done—and show you how little they cost in comparison with the added value and comfort. Just telephone.

(In this space Your Name, Etc.)

A two-column newspaper ad

Dear Madam:

It is a noticeable fact that the home is coming into its own again--we are doing more of our entertaining there and doing less of the running about that marked the last ten years.

That brings the home into the limelight--makes a critical survey of the home services necessary. Particularly where there are young people, it is important that they feel proud of the convenience they can offer their friends.

The bathroom is of the greatest importance in this respect. It should be, really, a room of beauty. And it can be, for modern plumbing design has kept pace in the use of line and color with all the other home furnishings.

We should like very much to talk over with you the possibilities of freshening up your bathroom. It may be only one of the new white or colored toilet seats--a set of colored shower curtains--a little tiling--a new medicine cabinet with a beautifully designed mirror--a little color in the fixtures.

Whatever it is, we can serve you efficiently. We've had a number of interesting bathroom remodeling jobs that we'd like to tell you about. No obligation, of course. Just phone, and a member of the firm will call on you at your own convenience.

Very truly yours,
HARRY BROWN

A plumbing sales letter

▲

The copy on these two pages is for the use of readers of DOMESTIC ENGINEERING —without charge. If you wish to use the illustrations, they are sold at $4.20 for twelve —three months' service.

If you are using any of this copy, send us samples. We like to keep in touch with what our readers are doing.

▼

WHERE DO WE GO FROM HERE?—HOME

"That's the answer to the question which, during the last ten years, we asked so often, and with so many answers," says Harry Brown, local plumbing contractor. "We go home now, when we used to go almost any place else in the years since the war.

"And that's going to make for prosperity. Because when we begin to entertain in the home, we'll want the home to be at least as good in appearance as our favorite cabaret or hotel. So we'll spend to make the old home a place of brightness and cheerfulness, and convenience. And as we spend on the home, so do we affect the nation's business. Because when people begin to spend on the home, fifty-seven varieties of industries feel the effects of it —so the experts tell us. That's a pretty good reason for spending for the home in 1932, because it will not only help the country, but will give us better homes to live in."

Hand this publicity item to your newspaper

IN the copy on this page—covering heating—we strike the "Spend for the Home in 1932" note again. It's your most effective appeal just now. Use it to the limit. Tie into the big national campaign that's being built around that slogan.

A two-column newspaper ad

At Home Tonight— Will It Be Comfortable?

They gave us just the right amount of heat—and in some cases they gave us conditioned air—in the places we went to in the days when we were going places and doing things. But when we go home tonight—to spend the evening there—will it be as comfortable? Will it be too warm, because it's warm outside and we can't throttle the heating plant down? It won't be, if you've got a modern heating plant—and we can show you how to save wasted fuel and get real comfort by bringing your heating plant up to date. Just telephone.

(In this space Your Name, Etc.)

"A Man's Home ...."

A MAN'S home, they say, is his castle. It's the center of his life—more particularly now, that we've left the feverish running of the last ten years in back of us. And it ought to be comfortable. It ought to be warmed just enough for health and comfort. If it's mild, the heating plant ought to give mild heat; if it's cold, the heating plant ought to roar. We can control your heating plant according to the temperature. It makes for comfort, convenience, and, above all, economy. Just telephone and we'll send a competent man to explain.

(In this space Your Name, Etc.)

A single column ad

CONTROLLED HEAT MEANS HOME COMFORT

"Controlled heat," says Harry Brown, local heating contractor, "is an essential to health and comfort in the home. And that's important, now that we are all doing a little more staying at home, and entertaining our friends there rather than elsewhere.

"I believe the home is coming into its own again and that the next generation is going to be much better acquainted with the living room than some of us have been. That makes home comfort a necessary adjunct to hospitality, and controlled heat will be necessary. It gives you the right temperature, according to the outside temperature—instead of delivering the same heating whether it's mild or cold outside. Guests will appreciate that kind of comfort when they're trying to prove Mr. Lenz or Mr. Culbertson right or wrong, as the case may be."

Give this publicity item to your local newspapers

Your Window

Window displays need change. If you have a permanent display of fixtures and equipment, make changes in lighting—use the free floor space for changed displays of accessories. Property owners who pass your window will never be particularly drawn to it if it remains the same in every detail for months at a time. Change—even small changes—is what draws attention to a window.

Dear Madam:

Most heating plants need discipline. You know how uncomfortable it is to sit at a bridge table, or at dinner, in a room that is too warm, because the heating plant is producing heat just as if the weather were raging outside.

When you are in such a room you may know for a certainty that fuel is being wasted because a great fire is roaring when a mild one would turn the trick. So a heating plant that has been put under discipline, and which can be controlled in accordance with the amount of heat that is required, means economy in fuel and greater comfort for your family and your guests.

That's important now--perhaps more important than it has been for some years. Because we are certainly using our homes more this year than in recent years for entertainment. We're at home again--and we want to be comfortable.

I'd like very much to have the opportunity to talk with you about your heating plant and to show you how, by bringing it up to date, and controlling it, your home can be made much more comfortable and much of the inconvenience of attending to an undisciplined heating plant may be eliminated.

Won't you just phone? I'll be glad to drop in at any time convenient for you.

Very truly yours,
HARRY BROWN

A heating sales letter

SPEND for the HOME in 1932

"I WANT to compliment, most emphatically, your publication on the slogan you have originated to bring the building industry to its feet. It is particularly appropriate at this time and should bring forth a considerable amount of business. The slogan should do more for the plumbing and heating industry than for other branches of the building industry, for I believe that plumbing and heating in places of abode throughout this great land of ours needs rehabilitation more than any of the other commodities which go to make for modern living. You may be assured the officers of the Central Supply Association will lend their aid to your campaign, and we hope to use it in the promotional work of our company."

So writes W. J. Spillane, president of the Central Supply Association. And his letter is an echo of what many others, who are ordering the stickers, the posters and the electrotypes which carry this slogan —"Spend for the Home in 1932"—to the public. R. L. Spitzley, president of the Heating and Piping Contractors National Association, also writes: "I was very much interested . . . I think DOMESTIC ENGINEERING is doing a great work in accomplishing the results that the master plumber deserves. The scheme may not be absolutely complete, but you are undoubtedly on the right path."

William E. Wolff, a contractor of Clarendon, Va., writes to say that the master plumbers of his vicinity are having a smoker next month, to which will be invited all prominent builders. "I am taking this means to congratulate you on this movement," he says, "and to ask if there is anything you can contribute to the proposed smoker in the way of posters, or, as a suggestion, a reproduction of the article in the January 9th issue." This, of course, is a splendid way to get the campaign before a group which can do much to stimulate business by getting back of it and it shows, generally speaking, how alert plumbing and heating contractors are adopting it.

Ray J. Power, manager of The Powers Co., of Des Moines, Ia., writes: "The writer is of the opinion that you are doing our industry a great service in this latest campaign, and for one wish to extend our thanks for your progressive spirit."

C. E. DeLozier of O'Bryan & DeLozier, Northfork, W. Va., in ordering some of the material, wrote: "Many thanks for the help you are giving the plumbing and heating trade. If some one does not come to the front for the plumber, he cannot hope to stay in business and compete with the chain stores."

And C. C. Carpenter, president of the plumbing and heating company in Lockport, N. Y., which bears his name, says: "Wish to take this opportunity to congratulate you on your issue of January 23. I feel that if these articles are read and given any thought by master plumbers throughout the country that they will certainly reap a big benefit from them."

P. W. Kerr, vice-president of Henry Weiss Manufacturing Co., Inc., of Elkhart, Ind., says: "There have been straws in the wind for many months indicating the reverse of the pendulum from the Jazz Era. These signs have pointed directly to the return of real interest in the home. Your campaign is, therefore, very timely, as well as sound, and we believe it cannot help but bring excellent results, based on intelligent and cooperative effort under the banner, 'Spend for the Home in 1932.'"

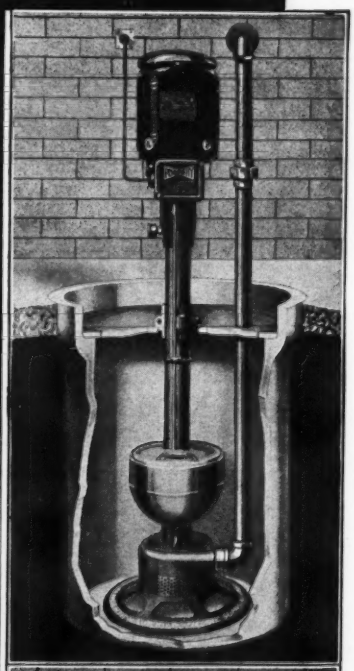
The above quotations will indicate the enthusiasm with which the idea is being received in our industry. Thousands of the stickers and posters have already been shipped to contractors, wholesalers and manufacturers of plumbing and heating lines who have recognized in this campaign an opportunity to divert a greater volume of purchases this year in the direction of our industry. Statements from the leaders in the automobile field, and a viewing of the automobile shows, indicate that that industry is not letting up in its selling efforts.

With competition keener than ever before, the plumbing and heating field should unite behind this slogan. Each company and each division of the industry can handle it in the way that seems best. The result will be a unified campaign with a powerful appeal, without any need for organizing a central effort. Have you joined this movement to increase business?

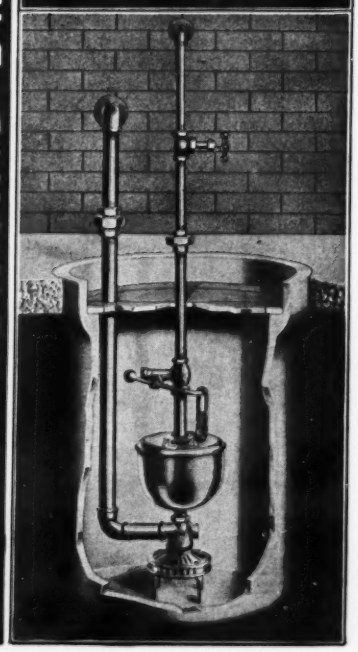
On the inside of the back cover will be found full details as to the poster, etc., to be used by our readers. On the preceding two pages will be found suitable advertising copy

RUST PROOF

COPPER AND BRONZE THROUGHOUT



PENBERTHY AUTOMATIC ELECTRIC SUMP PUMP



PENBERTHY AUTOMATIC CELLAR DRAINER (Water Operated)

PENBERTHY PRODUCTS

THE plumbing contractor need not be told the many advantages of using copper and bronze in the construction of equipment for the removal of seepage water from basements, elevator sumps, scale pits, piping tunnels, etc.

Penberthy Automatic Electric Sump Pumps and Automatic (water operated) Cellar Drainers are built of copper and bronze throughout . . they cannot rust.

The design and workmanship of Penberthy Pumps are as outstanding as the quality of the materials used in them. Consequently, these pumps are trouble-proof as well as rust-proof.

There is a type and size of Penberthy Pump for every purpose. Sump covers for both electric and water operated units can now be supplied at slightly additional cost. Penberthy Pumps are stocked by leading jobbers everywhere.

PENBERTHY INJECTOR COMPANY

Established in 1886 — DETROIT — Canadian Plant Windsor, Ont.

PENBERTHY PUMPS REMOVE SEEPAGE WATER

Editorials

Why Merchandising Is Necessary

FIGURES recently issued by the department of commerce show that $191,500,000 in household appliances are sold annually by 262 chain systems. These systems have 4,472 retail stores selling "electrical or gas appliances, or both."

Two hundred and nineteen of these chain store systems are operated by the utilities and they sell something like 73 per cent of all the household appliances sold, according to the figures for 1929, the year on which the national census figures are based. That leaves 42 chain systems which are in competition with the independent dealer.

Call it what you like—trade promotion, sales promotion, merchandising, selling—whatever it is called, it is necessary in the face of this competition. And when there is added the direct-to-you competition and the occasional short-circuiting of distribution channels in our own industry, the reasons for aggressive selling effort grow stronger.

We would like to see a closely knit co-operation that reached from manufacturer to wholesaler to retailer in our field, united to face outside competition. We would like to see sound co-operative activity in every community in the country. But that is visionary. Until the leaders in the whole building industry learn that tripping, and gouging, and rabbit punches hurt them as well as the recipients, we will see only isolated examples of good team work.

The contractor in our field is, therefore, face to face with this fact: He has two things to sell. First, he has products that are nationally advertised. Second, he has his own good name and reputation. If he finds it impossible to use the advantage of advertised products, because others also can buy them and sell them at prices which he can not meet, then he has left to sell just one thing: His good name and reputation.

But that is a powerful thing, and skilfully used it can be the success of any individual contractor, or group of contractors. Two things should be in every deal for the user of plumbing and heating products: Good mechanical work, and a firm that looks as if it is going to stay in business.

Put that thought over forcibly, that your firm guarantees its work, and will be there to serve the customer indefinitely; point out that merchandise bought because it is cheap does cost more in the long run; that even a competent mechanic who can put the merchandise in use in the first place isn't much of an asset to a home owner if he's in business with nothing more than his tools.

If we can not get in this industry of ours the kind of a co-operative selling effort, that actually gives the retailer assistance at the point of sale, then the retailer must make use of such aid as he can get, but above all he must proceed to put himself on the map in his community as the man who knows, who stands back of his work, who is in business to stay, and who will be there when all the fly-by-night selling has passed out of the picture leaving the customer "holding the bag."

Another Study of Retailing

WHILE we are on the subject of retailing, it may as well be completed with the results of a study of retail failures. Here is what the department reports as the four major causes of failure: 1. Keeping no books or very poor books. Fifty-three per cent of the casualties analyzed were defective on this score of inadequate accounting. 2. Taking no inventories, thus being ignorant both of the dangerous accumulation of unsalable items and of the rich possibilities of salable ones. 3. Careless operation of their credit policies. In one case after another the victims had suffered losses running up to 5 per cent of their total credit business when the average loss of successful retailers was much less than one per cent. 4. Total lack of previous experience with the intricate technicalities of successful storekeeping.

We call particular attention to the comment on Reason No. 4, which follows: "On that last point, unfortunately, the responsibility the study reveals rests to some extent upon the over-eagerness of wholesalers and manufacturers who set the would-be retailer up in business." The report goes on to refer to the "dismal records of retailer bankruptcies" which "reveal unhappily the unwarranted, excessive hazards involved in this practice. The responsibility for the betterment of retailing certainly rests, so far as this one point is concerned, upon others besides the unfortunate victims."

There is no need to preach a sermon upon those remarks. They stand for themselves, a clear indictment of a practice that must be corrected if conditions are to be bettered.

AN
EDITORIAL
SECTION

AUTOMATIC HEAT SECTION

SILENT GLOW SUPERIORITIES

5 • THE REDDYLITE

In devising the Reddylite**, Silent Glow engineers again lead the range burner industry.

Originally designed as a refinement, a convenience, the Reddylite** has made range burner history.

The Reddylite** is a self-extinguishing lighting torch, designed to be, as its name implies, always ready for instant use.

The Reddylite**, within a few short weeks of its introduction has become not only worth while but almost of vital importance in range burners. So again, Silent Glow engineers gain credit for leading the industry in range burner design.

Silent Glow engineers are constantly working three years in advance of production. Continual refinements are being made in Silent Glow products. Improvements are continually being added, but each refinement, each improvement, may be added at small cost to any Silent Glow model. Thus no Silent Glow can ever become obsolete.

There, in a nutshell, is an outstanding characteristic of Silent Glow, which, added to the facts that there are more Silent Glow Range Burners in operation than those of any other make, that the aggressive Silent Glow advertising policy is continually bringing new prospects to dealers, that the Silent Glow Oil Burner Corporation is the largest producer of oil burning equipment in the world and financially one of the strongest in the Industry, offers you an opportunity for establishing a successful, profitable business that rarely comes. If making money interests you, get in touch with us by letter or wire at once.

The Silent Glow Range Burner is listed as Standard by the Laboratories of the National Board of Fire Underwriters.

THE SILENT GLOW OIL BURNER CORPORATION

Chicago HARTFORD, CONN. St. Paul

IN CANADA: SILENT GLOW OIL BURNER CORP., LTD.
6320 St. Hubert Street, Montreal, P. Q.

Member American Oil Burner Assn. *Member National Electric Light Assn.*
Member Oil Heating Institute *Member Distillate Burner Mfrs. Assn.*

**Patent Applied for

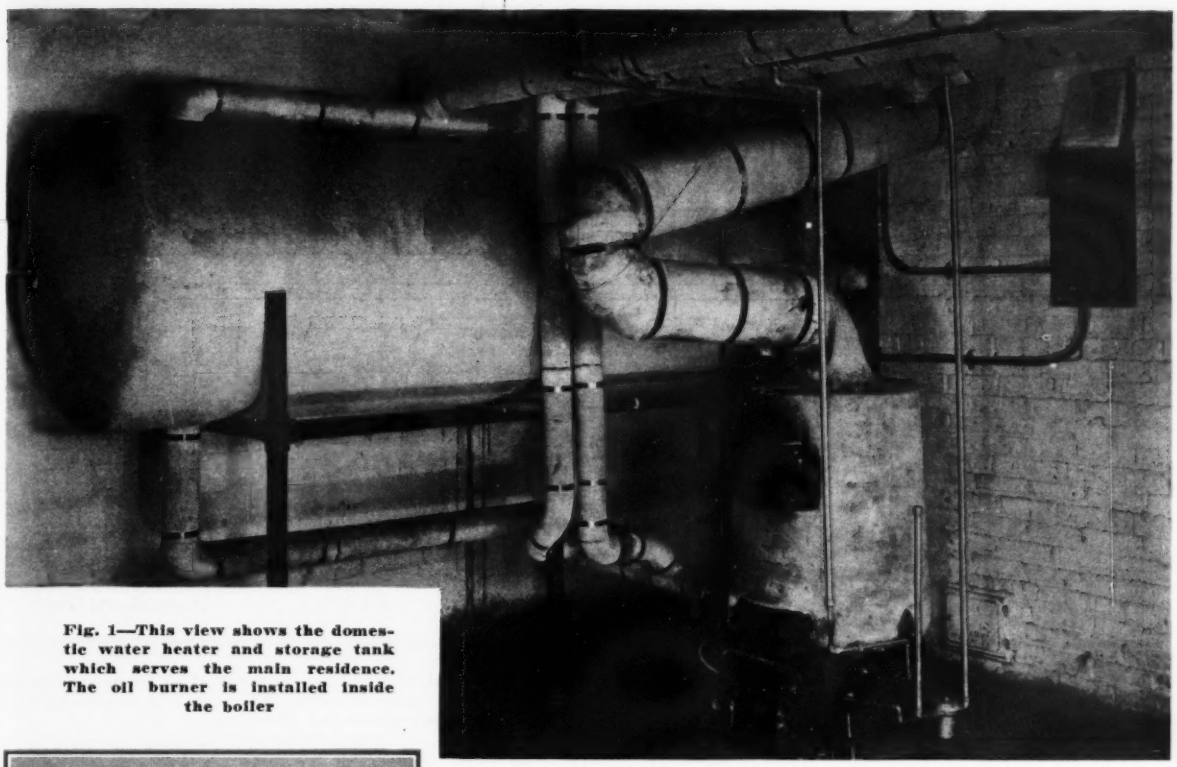


Fig. 1—This view shows the domestic water heater and storage tank which serves the main residence. The oil burner is installed inside the boiler

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Modernizing Program Requires Eleven Oil Burners

THE estate in one of the suburbs of Chicago, which is the subject of this article, probably presents as great a variety of heating requirements, heat uses, systems of heating, and temperatures to be maintained, as can be found in a domestic establishment held by and serving one owner. A list of the buildings heated will lead to an appreciation of the range in requirements. They are as follows:

The main house, which is the owner's residence.
The greenhouse buildings.
The recreation building.
The dairy and office building.
The superintendent's residence.
The boarding house for employes.
The gate lodge.
The guest house.
The garage.

The estate covers an area of approximately a square mile, and the buildings are widely separated, necessitating individual heating plants. The first building was put up about six years ago, and the last one

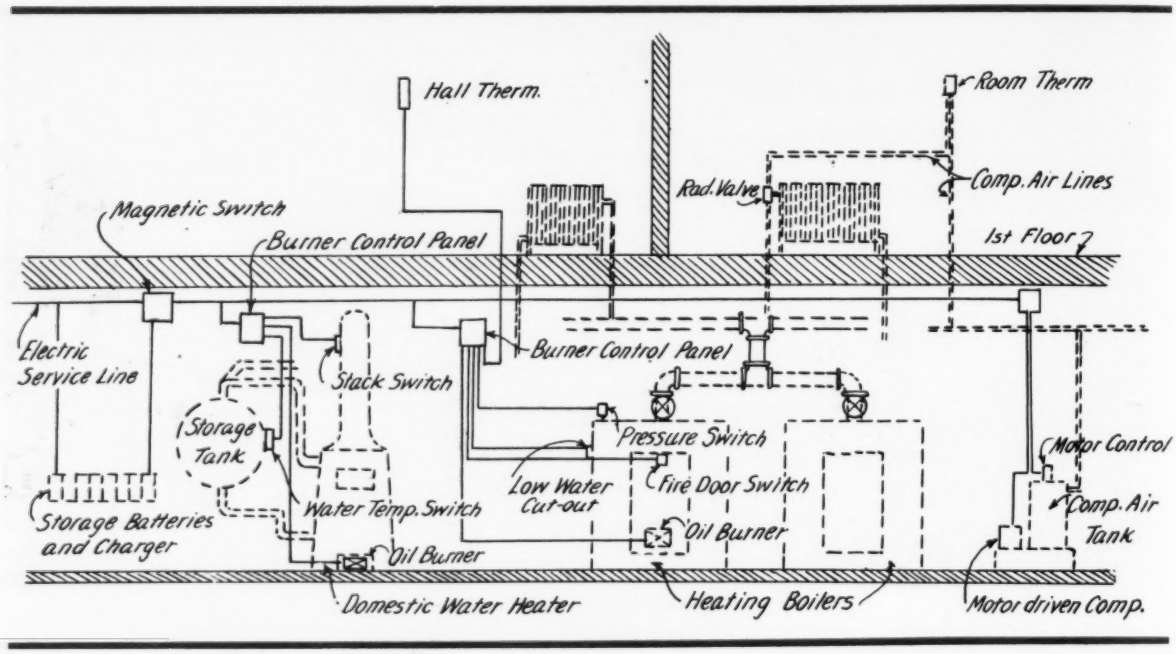


Fig. 2—Here is an elevation showing the equipment in the main house. Storage batteries are provided to guard against an interruption of electric service. The various controls are placed against each other as limits and checks. If something happens to one system, another is brought into operation to regulate the oil burner

finished, the recreation building, was completed about a year ago. The first change from hand firing to automatic oil heat was made about the middle of 1929, and the other burners were added after the initial installation had proved its reliability and economy. Only one of the buildings, the recreation building, which was built after the first burner was installed, had a burner included as part of the original heating equipment. Ten of the burners were therefore the means of eliminating the hand firing and manual control that had been the method of operating their boilers.

V

A brief general description of the heating plants will explain the statement previously made concerning the variety of conditions met here. There is hot water, with and without circulating pumps, and one of these systems is supplied by an indirect connection to a steam boiler. In the steam plants, boiler pressures of from one pound to fifty are maintained. Heating is by direct radiation and by air from a completely equipped air conditioning plant. Temperatures to be maintained run from just above freezing to 80 deg. Fahr. One burner heats domestic water. All burners run from an alternating current electric supply, and two of these have emergency current connections from storage batteries, with automatic switching control. There are automatic temperature and pressure controls to start and stop burners, a temperature controlled switch to ring an alarm bell, and two automatic controls to start and stop heating water circulating pumps.

The ingenuity displayed in taking care of the control requirements and conditions imposed upon them are interesting and instructive. They serve as an inspiration to any man engaged in fitting heating equipment to a given set of conditions and requirements, to see that he has, in fact, fitted the conditions.

This article will be restricted to a description of the control equipment and the arrangements which make the various plants automatic. None of the equipment used is special. There are no complicated connections nor delicate mechanisms. Since the controls are all working to the entire satisfaction of the superintendent who is responsible for the smooth running of the entire property, there may be ideas here that will prove of use in other automatic heat installations, either in new construction or in other modernizing projects. A detailed description of the systems follows:

The main house is simply a large country home. When built, the house had two boilers installed, and a domestic water heater. All were coal burning and hand fired. Heating is by cast iron steam radiation, with compressed air controlled valves operated by room thermostats. When changes were made, an oil burner was installed in one of the heating boilers and another one in the domestic water heater. The second heating boiler was left with the original grates, and since some coal remains in the basement this boiler can be used in an emergency, but so far it has not been necessary.

V

The burner in the heating boiler has a limit control in the form of a thermostat in the main hall. The hall radiator, unlike the others in the house, does not

have radiator valve control. Also there is a pressure switch on the boiler that keeps up a pressure between 1 and 5 lb. per sq. in. Normally the room radiator controls open and close radiator valves as the room temperatures fall below or rise above the control settings. In order to have steam available, the hall thermostat is set at about 90 deg. Fahr., and the actual burner control is therefore by the pressure switch. At a given outside temperature, the burner will run much or little depending on the number of radiator valves open and the consequent demand on the boiler for steam to offset the condensation. The hall thermostat would operate by shutting off the burner in case of an excessive temperature in the house due to accidental breakdown of the compressed air system, which would open all the radiator valves. Since the hall radiators are not automatically controlled, the hall thermostat would act as a safety cut-off in case of failure of the pressure switch to act. The burner is also shut off by a float controlled switch in case of low water in the boiler.

V

The domestic hot water system consists of a small heater, an oil burner, and a storage tank of about 250 gallons capacity. The water temperature is held to about 160 deg. Fahr. by a water temperature control switch which starts and stops the burner.

V

The main house as built had a set of storage batteries and a charger installed so as to furnish emergency current for light and power for household uses, thus guarding against inconvenience to the owner and his guests in case of accidental failure of the main service. The change from battery current to service current and back is made automatically by means of a magnetic switch. The burners in this building are operated by universal type motors, and they also are connected so as to work on either alternating or direct current.

The greenhouse group consists of two separate glass houses with a total area under glass of about 7,000 sq. ft. There is also a potting house, of the usual walled type, with living quarters for the workmen of the greenhouse crew, above it. When built, the greenhouse heat was furnished by one hot water boiler in the basement of the potting house. A second boiler and an oil burner were installed in 1929

(Continued on Page 68)

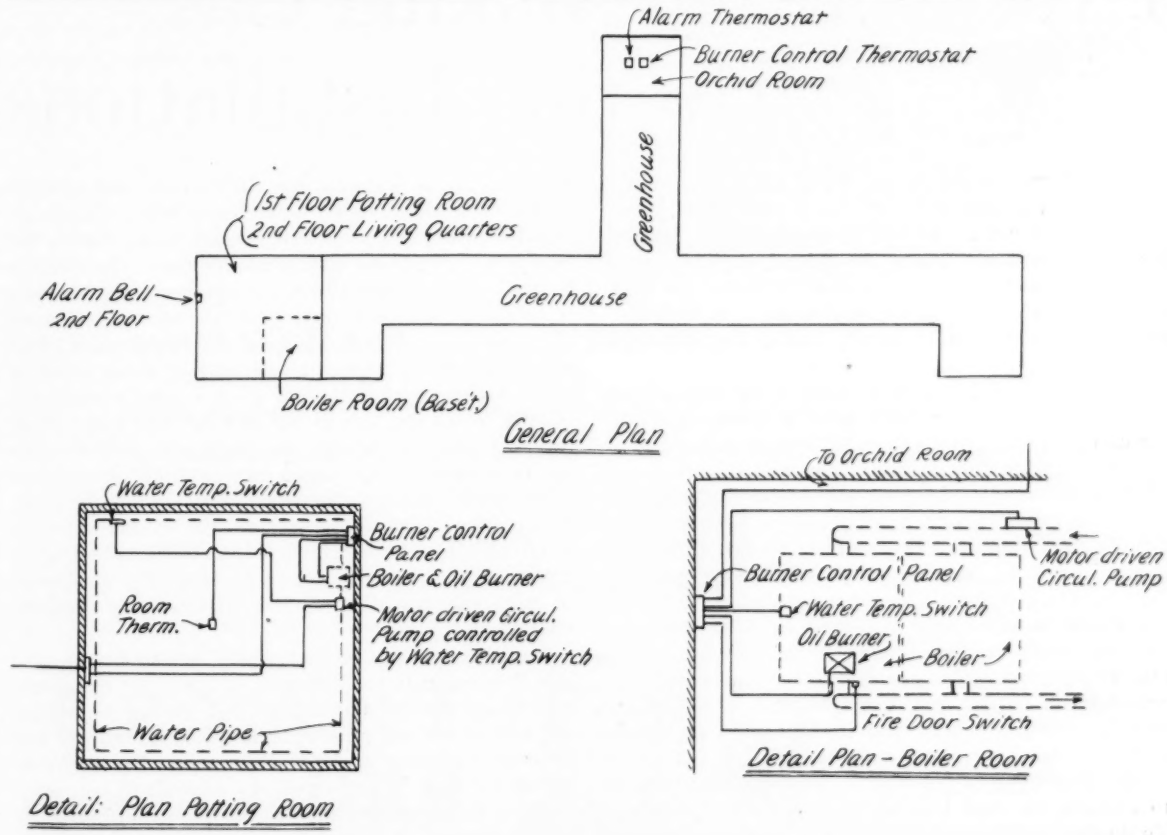


Fig. 3—Here is a lay-out of the greenhouse buildings. Note two temperature devices are installed in the orchid room. One holds the temperature up to 80 deg. Fahr. while the other sounds an electric alarm bell in the event that something happens to reduce the temperature to 70 deg. Fahr. or below

AUTOMATIC HEAT SECTION

This is an exterior view of the Ohio Bell Telephone Company's building at Dayton, Ohio. It is served by the gas fired job shown on the next page

By R. H. RUWALDT

Experiences in Making Gas Heating Installations

THE home owner, in his choice of heating equipment, utilizing gas as a fuel is confronted with a problem not unlike that of the man who plans to buy transportation. There are several ways it can be done. But unlike the transportation problem, the heating equipment is not so easily changed. It therefore, requires careful thought before definite equipment is chosen.

While we do not ordinarily make a recommendation to the customer, we are often asked to comment on the merits of various types of central heating plants. Our own interest lies only in urging the customer to install efficient and approved equipment which will result in a safe and satisfactory heating system. There is no definite rule which can be generally applied to heating a certain type of building which will always give the same results, therefore, we cannot say that every bungalow should be heated with hot water or every two-story building should be heated with steam. Each building plan requires particular analysis to determine its exact construction, so that the design of the plan specified may be followed exactly and its maximum usefulness result.

The first step in planning a heating installation is to estimate the heat loss for each room to be heated. To do this, it is necessary to know all the areas through which heat is dissipated and their construction. Insulation plays an important part in the heat loss from a room and is therefore important to observe wherever found. Experiments have shown that the exposed wall radiates cold in proportion to its heat conductivity. Insulation greatly lowers this conductivity and hence lowers the heat loss through the wall wherever used. In addition to insulation we must also know whether storm sash are to be used. With a knowledge of the above, equipment size can be determined based on the temperature to be maintained in the home. In the case of a hot water or steam boiler an allowance of 25 per cent is made for starting losses and also 25 per cent for pipe loss. From the heat loss calculations, the necessary radiator sizes are determined. For homes not severely exposed, an allowance of one air change per hour usually is made. Where blower and filters are used the volume of air to be circulated is also determined from the heat loss calculations. Good practice seems to favor the circulating of large volumes of air at low velocities and temperatures.

Having sized the equipment and radiation, the next step is to estimate the fuel cost. Experience has shown an average gas consumption of 3.71 therms per season per foot of hot water radiation and 5.83 therms per foot of steam radiation in the Chicago area. Warm air installations may be converted to equivalent hot water systems to determine this consumption; knowing the total radiation, it is an easy matter to determine the approximate volume of gas that will be consumed. Many installations run well below this average.

In the case of replacements or the converting of exist-

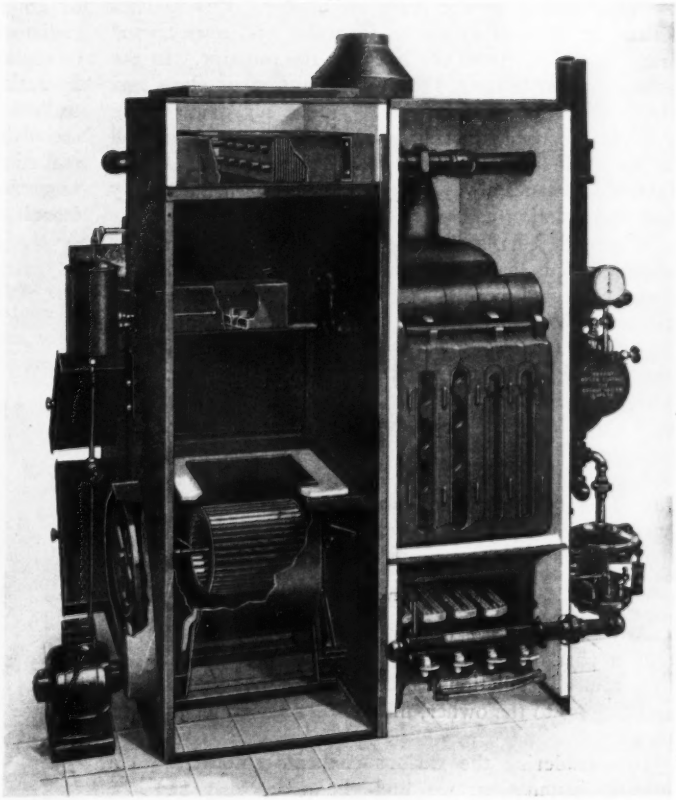
AUTOMATIC HEAT SECTION

BRYANT Dualator

STEAM WARM AIR

HEATS CONDITIONS COOLS

TRADE MARK REG.



For twenty-seven years Bryant engineers and scientists have specialized in gas house heating equipment. ¶ In gas boilers they have developed the Bryant Unified Design of boiler, burners, controls . . . more Bryants are installed every year than any other gas boiler.

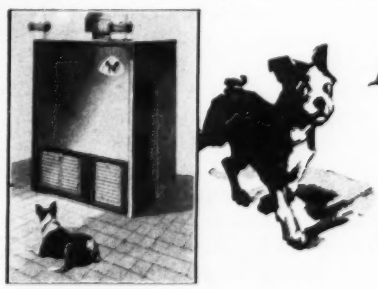
The Bryant gas boiler is the most practical for the trade to handle, pre-fitted before shipment, easy to install, economical to operate.

and now STEAM *and* WARM AIR *from one flame*

In the Dualator, one set of gas burners provides both steam and warm air . . . a gas boiler and an air conditioning chamber side by side, but operating as a unit. ¶ For the usual installation, filtered and humidified warm air is circulated in the living rooms, steam is piped to service and bedrooms. Any capacities of warm air and steam may be arranged to your specifications.

The Bryant Dualator makes a big hit with customers. It always gets their interest. Let us help you. Write for information. The Bryant Heater & Mfg. Co., 17835 St. Clair Ave., Cleveland, O.

BRYANT *Automatic* GAS HEATING



Lets your pup be your furnace man

AUTOMATIC HEAT SECTION

ing plants to gas, the above heat loss calculations are made for the whole building instead of room by room. This calculated loss will then govern the size of the gas heating boiler to be installed or the capacity of the gas conversion unit.

Perhaps the most important thing to note in connection with replacement jobs is the capacity and layout of the system. Care must be taken to see that the installed radiation is adequate to heat the building without extreme forcing of the boiler or burner. Pipe pitches should be checked to insure favorable and unrestricted transfer of heat from the boiler to the radiator. In the case of steam heating, the proper location of vents and traps is of great importance. Where air conditioning systems are used, duct sizes must be measured as well as all grille areas. These should be adequate and a favorable balance always should exist between the supply and recirculation capacities.

Where defects are found in the system when the above check is made, recommendations are made to have them corrected before the gas heating installation is made. Unless this is done, a satisfactory heating service cannot result. Fuel costs are determined as in the case of new installations but a factor of safety is added where coal burning equipment is converted to gas. This is a variable factor depending upon the design of the equipment. In general, it may be said that most coal burning boilers can be satisfactorily converted to use gas. Tests recently conducted at Purdue University have proven that the carefully installed gas burner in the coal boiler makes an efficient and satisfying job.

Common Faults

Any boiler suffers if it is incorrectly installed. It is only a part of the heating system and if handicapped by a faulty installation it becomes a source of discontent and disgust to the owner, instead of a source of joy and pleasure.

In considering the various elements entering into a heating installation, we find the following: (1) the piping, (2) the radiation system and control devices, (3) satisfactory draft.

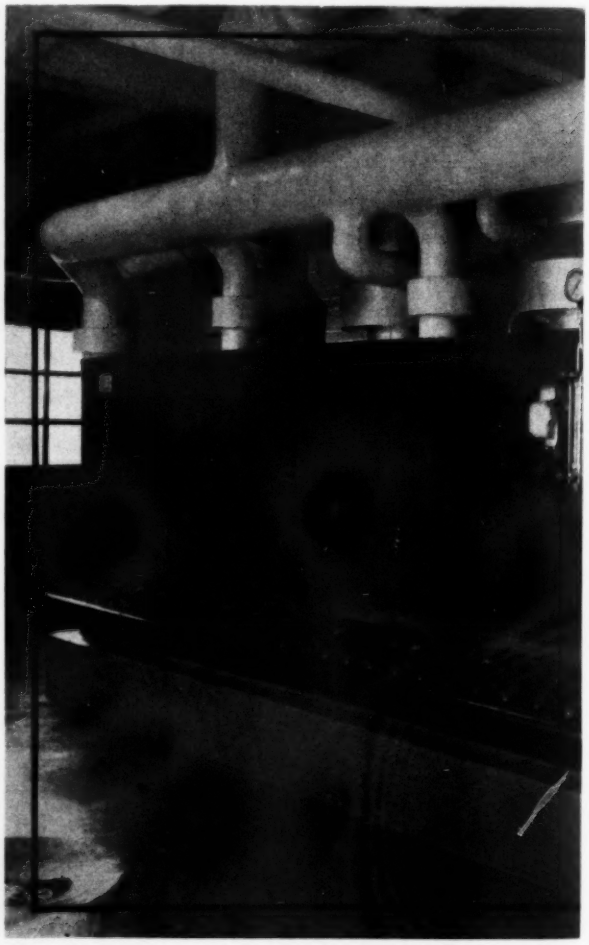
Steam Heating

A complaint frequently heard with steam heating is that the gas heating system does not hold heat. Since the heat storage capacity of a gas-fired boiler is relatively small, adequate provision must be made for venting the system. During the off period of the boiler, air will enter any steam system to some degree. When the system again starts up, all the air must be expelled before steam can circulate. When this is slow the room temperature will continue to drop before the system actually begins to heat. Often we hear that some particular radiator does not seem to heat up. The usual cause for this is that the radiator is at the end of a steam main in which the steam has been dissipated by other radiation nearer the origin of the steam supply. In some cases valves become dirty and do not open to release the air and water in the radiator. Cleaning these valves usually will remedy this trouble. A case occurred where second grade traps were used which held the water in the radiator. This caused the water line to drop in the boiler and shut it off. As a result, the water froze in the radiators. In our recent experience we had a case where the water left the boiler. This took place in a new installation and it was assumed that it was caused by the priming or foaming of the boiler water. After blowing the boiler down many times the traps were finally inspected and found defective. They were replaced by good traps and the difficulty was corrected.

Sometimes we encounter a system which seems to be slow in heating. The usual cause for this is the absence of air vents in the return lines and poor vents at the radiator. We had a case where it became necessary to replace all the old vents, because of the slow heating-up action of the system. After the new vents were installed a marked difference was noticeable. Another complaint which may often be encountered on a new installation is a fluctuating water line. Usually this is due to grease and oil in the boiler which cause priming and foaming.

Hot Water Heating

The hot water type of heating system is quite immune from trouble. When the piping is properly installed, very little maintenance is required. Perhaps the most common source of trouble in this system is the lack of



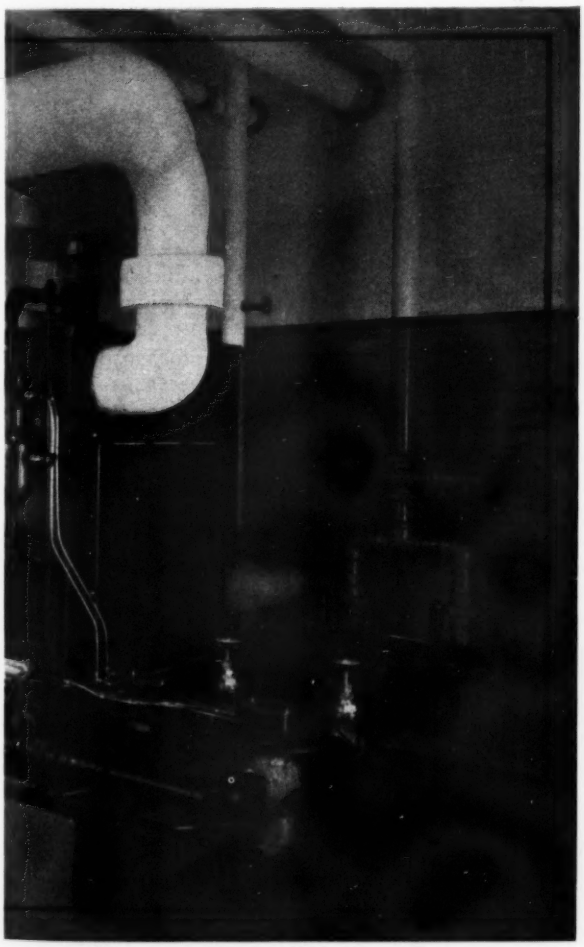
The heating installation seen in this view was made by the Pickrel Plumbing Co. of Dayton.

sufficient radiation. Water temperature should be about 180 deg. Fahr. on an open system with adequate radiation provided for severe exposures. In the absence of this, the system loses efficiency when forced on cold days. The correction is additional radiation or converting the system to a closed one. Systems are speeded up and made more efficient by means of a water pump or a circulating device which accelerates the water through the system.

Drafts

An important part of every heating installation is a satisfactory draft condition. In some cases this is the deciding factor in making an installation a success or a failure. In many cases it presents a real problem. Insufficient chimney height and the proximity of large buildings are the common causes of troublesome drafts. Care must be taken to make adequate provision for the disposal of the products of combustion from a gas boiler. The flue gases are invisible and odorless and occupy the same volume as those from a solid fuel for the same amount of heat liberated. The requirement for sufficient draft is a chimney high enough to exert sufficient draft tension to dispose of the volume of flue gases generated and also provide against down drafts. In one of our installations extreme difficulty was met in keeping the pilot light burning in a conversion installation. Many adjustments were made on the pilot both as to its position in the boiler and its flame size, all of which seemed to make very little difference. After some time a study was made of the draft through the boiler and only after this had been reduced could the pilot be kept burning.

In still another case, when atmospheric conditions prevailed, we experienced difficulty in maintaining any draft on the boiler whatsoever. Fans were placed at the chimney cleanout doors and a draft created in this way. Finally we decided to baffle the flue passages in the boiler which we would ordinarily believe to aggravate the above condition. Contrary to our reasoning, however, we had no further trouble with this installation.



Ohio. Notice the job is complete even to the extent of having tags placed on the valves

Combustion

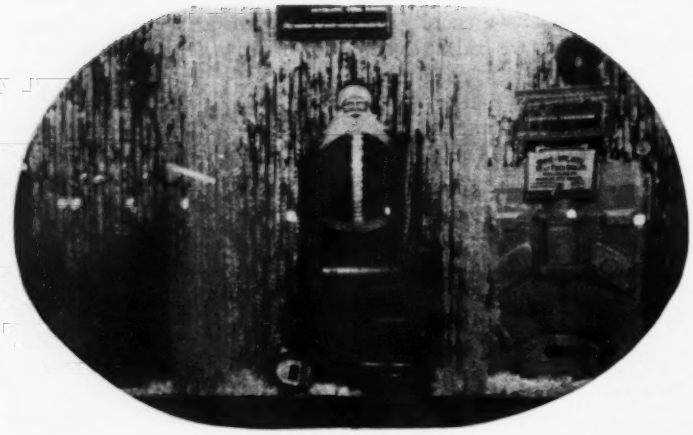
As a general rule very little trouble is encountered in supporting combustion on a gas boiler. Usually the draft condition and air supply have been previously designed for solid fuel and are excessive when gas is used. In a few cases, however, where large installations were made in small rooms we met with combustion trouble. In one instance a large gas boiler was installed for an apartment building. The boiler room was cut down to the minimum size to accommodate the boiler and controls. After the plant was placed in operation, however, it was found that very poor combustion resulted at the burners. Any adjustments made as to draft and air mixtures seemed to work satisfactorily for a time and then a yellow flame would again result. It was discovered that by leaving the boiler-room door open this characteristic changed and a very efficient flame could be maintained. After other tests we found it necessary to keep this door open at all times to support proper combustion.

Condensation

A certain amount of condensation will always occur in the chimney. This however, can be minimized by making the connection from the boiler to the chimney as short as possible. Increasing the stack temperature will also reduce the condensation formed. In some cases where chimneys are old and the mortar is in bad shape this condensation may come through the walls and discolor the paper on the inside. One remedy in this case is to place a metal lining in the chimney. In some cases the joints may be patched up and the leaks stopped. We have had two cases, where chimneys were porous and permitted condensation to come through to the inside wall.

In both cases metal liners were installed and the condensation trouble was eliminated. In both of the above cases, the lining was installed about three years ago and no further trouble has ever resulted from condensation. In another case we found the chimney draft to be very sluggish, especially when an incinerator was connected and burning at the same time as the gas boiler. This fault was due to a disintegration of the mortar in the chimney joints which gave way and left openings in the chimney sides. After these were pointed up a satisfactory draft condition again resulted and no further trouble was reported.

Engineering for Stoker Satisfaction



"You can't say to your mechanics, 'Here's a stoker that will fit Mr. Johnson's boiler. Take it over and put it in.' If you do that and try to forget it, you're sure to hear from your customer."

"OUR experience with automatic stokers covers a period of two years," said William Bornstein, general manager of the Harland Corporation, Bethlehem, Pa., "and we have learned that stokers can be installed with 100 per cent satisfaction, whether domestic or industrial, if proper attention is given to all the little details that are frequently overlooked by the contractor, whose thoughts are centered on sales rather than sales satisfaction."

This firm operates in that part of eastern Pennsylvania known as the anthracite region, and it is in this district where certain engineering problems are encountered that are peculiar to this section only. As Mr. Bornstein explained, approximately 90 per cent of all stoker installations in the United States have been made for the use of bituminous coal. Many styles of stoking equipment have been designed, particularly for the use of bituminous fuel. It therefore becomes apparent that when stokers are sold in a territory where either bituminous or anthracite fuel will be used, depending upon the inclinations of the user, certain engineering problems will be encountered that would be eliminated if only one type of fuel were available.

Engineering for Satisfaction

"We can tell a customer that, under certain conditions, bituminous fuel will give greater efficiency, but we cannot insist that bituminous be used. We have recently had a case in point. This is a large industrial installation, and the cost of bituminous fuel prepared for stoker use would cost about $4.00 per ton, delivered at the plant. This customer, however, can purchase a fine size of anthracite at a slightly lower cost, delivered at his plant. We recommended bituminous, but the customer uses anthracite. Of course, he is perfectly satisfied, because we engineered the installation for the use of anthracite. But bituminous would, in this case, be the proper fuel.

"Every installation is an individual problem. It must be considered as such if there are to be no take-outs. You can't say to your mechanics, 'Here is a stoker that will fit Mr. Johnson's boiler. Take it over and put it in.' If you do that and try to forget about it, you're sure to hear from the customer. And what you do hear won't be very pleasant."

When asked just how his firm goes about making domestic installations, Mr. Bornstein explained that the

AUTOMATIC HEAT SECTION

The Greatest Sales Opportunity of the Year!

IRON FIREMAN
AUTOMATIC COAL BURNER

NOW SELLING FOR

$275

INCLUDING AUTOMATIC CONTROLS

PLUS INSTALLATION & FREIGHT

TERMS AS LOW AS $12.50 A MONTH

Your customers need it . . . You can sell it!

● IRON FIREMAN offers alert heating, plumbing and furnace men an unusual money-making opportunity. Iron Fireman, the machine that made coal an automatic fuel, is now available to homes *at the lowest price in Iron Fireman history.*

The introduction of this Iron Fireman domestic stoker opens up a tremendous residential market. The field is so big, so fertile and so untouched that there is ample room for alert plumbing, heating, and furnace men to join Iron Fireman's national sales organization as dealers, associate dealers, or sales agents.

You will immediately sense the profit possibilities in selling Iron Fireman. You are already in the heating business. Through intelligent and aggressive methods you have established yourself as an authority in home heating. Your sales field covers existing homes as well as new construction, for Iron Fireman delivers what every home-owner wants—*better heat for less money.* Iron Fireman cuts fuel costs, provides steady, efficient heat, eliminates smoke nuisance, saves labor.

THIS MAY BE YOUR BIG OPPORTUNITY

In selling Iron Fireman you associate yourself with the *pioneer and largest manufacturer in the small stoker industry,* and you participate in the complete sales, advertising, and engineering support that Iron Fireman gives its sales organization.

Iron Fireman is a *leader* looking for *leaders.* The product is right. The price is right. The market is right. This may be your big opportunity. Write, wire or telephone at once. Iron Fireman Manufacturing Company, 3170 W. 106th St., Cleveland, Ohio. Factories: Cleveland, Ohio; Portland, Oregon; Toronto, Canada. Branches or subsidiaries: New York, Chicago, St. Louis, Milwaukee.

IRON FIREMAN MANUFACTURING COMPANY, Dept DE1
3170 W. 106th St., Cleveland, Ohio.
Give me full information regarding the Iron Fireman franchise.

Name .....

Address .....

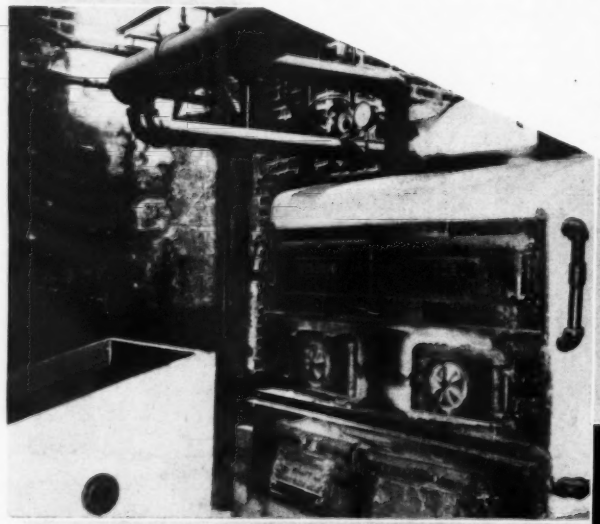
City ..... *State* .....

SELL IRON FIREMAN . . . MAKE 1932 A GOOD YEAR

AUTOMATIC HEAT SECTION

study of the problem begins with the sale. After the salesman has a prospect, the heating engineer is called in to study the system and to recommend the type of stoker necessary. After the installation has been made the engineer will stay there until he is satisfied that it is not only mechanically perfect, but that the proper rate of heat transfer has been attained.

"One of the greatest inconsistencies," he continued, "is encountered in domestic installations. The installing mechanic usually works on the theory that the best results are attained by keeping the fuel at the same level as when fired by hand. In some cases this is true, and in others it is not. Therefore, there is only one proper thing to do. That is to make the adjustments to fit each individual case. And these adjustments must be made by a man who has more than a superficial knowledge of combustion engineering."



Above, left, stoker installed in boiler pit for Grand-Silver Store, Allentown, Pa. Below, battery of stokers installed in plant of Easton Merchants Ice Co., Easton, Pa.

The Harland Corporation realizes that what a man ultimately has in mind is not merely the purchase of a stoker. In the last analysis he is buying temperature. If the proper temperature is delivered at a reasonable cost he is bound to be satisfied, and it is the engineer's duty to see that this is the case. Considerable attention is also paid to the condition of the chimney as well as to the amount of radiation in the house. If there is an insufficiency here recommendations are made to rectify the trouble so that satisfaction may be assured.

While this firm expends considerable sales effort to sell both domestic and industrial installations their experience has shown that the industrial business has been the most profitable by a large margin. The explanation for this is that the profit on one of these sales may be from five to twenty times as much as on a sale of domestic equipment, while the actual cost of selling and servicing these large installations is in many cases very little more than similar expense for a domestic stoker.

Mr. Bornstein advanced another reason why their domestic sales have not been keeping pace with the industrial sales. "Our domestic stoker is one of the highest priced on the market," he stated, "and we have to meet the competition of $300 equipment with stokers selling from $500 upwards. Quite naturally we lose sales to dealers in the lower priced stokers, while we do make sales to those who want the best there is to be had.

"The purchaser of an industrial stoker, on the other hand, is more interested in dependable and reputable machinery than in saving a small amount at the expense of future trouble. We don't sell all the industrial stokers in our territory, but we do sell a nice proportion, because the equipment we sell is known to every executive for its reliability through years of service. The industrial buyer considers that fact seriously."

Salesmen Used Effectively

While newspaper advertising is used, and also direct-mail to a selected list, it is felt that the use of a force of outside salesmen is the only successful method to develop prospects. An outside sales force of five or six men is employed constantly. These men canvass homes and industrial plants every day to locate possible prospects. Unless a salesman has had considerable experience he is not expected to close a sale.

The usual procedure is to make an appointment with the prospect. The sales manager or a member of the firm will then call and endeavor to close the sale.

The reason for this method is quite obvious. A salesman unacquainted with the problems in this industry

must necessarily undergo a lengthy period of training before he is capable of giving an intelligent answer to every question that might arise in the sale of a stoker or a heating plant. And to attempt the final closing without a fundamental knowledge would be to invite disaster.

New salesmen are therefore given a preliminary training that they may at least know how to solicit prospects. After they have been doing this work for some time they begin to acquire knowledge and experience, and finally emerge as salesmen who are able to close sales.

The greatest number of prospects are found as the result of house-to-house or factory-to-factory canvass. Newspaper and direct-mail also brings a few names. Building permits are closely scanned. The national advertising of the manufacturer also develops some leads which are given to the dealer covering the territory where they originate.

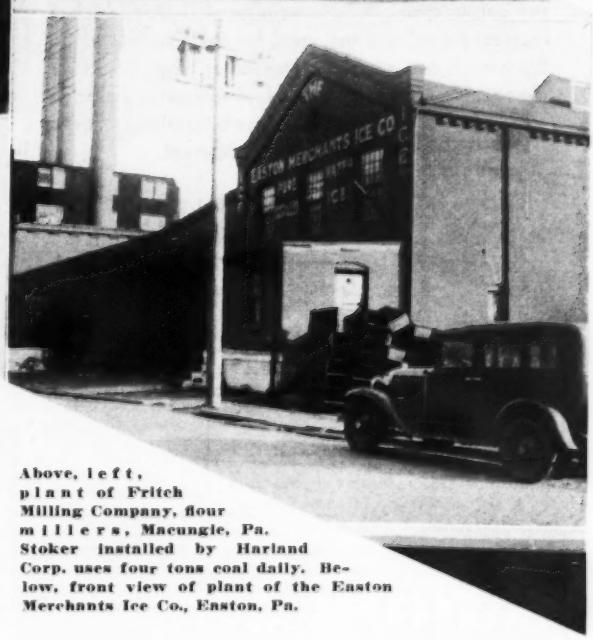
Mr. Bornstein was asked whether these salesmen are employed on a salary or commission basis.

"We tried various plans over a period of two years," he replied, "and have found that the straight commission method is the only feasible plan for us. At first we allowed each salesman a drawing account of from $20 to $50 a week, depending upon what we thought he might actually be able to earn. We soon discovered that some men have exceptional ability in selling their services for top figures, but that they do not have this ability when they begin to sell merchandise. This drawing account plan has cost us over $5,000 in excess of commissions actually earned. It is not practical. The average man who insists on a drawing account very rarely makes the effort to bring his commission earnings up to his withdrawals. Consequently, we found it necessary to make a change in our plan.

"Our present plan is this: When we start a new man we pay him for every lead that can be turned into an actual sale. This payment averages about 10 per cent of the amount involved. All he does in the beginning is to develop leads that can be closed by us. He works on this plan until he is able to close small sales, and finally the larger ones. Until he is able to work 'on his own' we have the additional expense of sending an experienced man to close the sale. Our expense in doing this adds another 10 per cent to our selling cost, so we really pay 20 per cent for selling services. Add to this our overhead and it will be seen that we have a rather expensive set-up for the sale of domestic stokers, while on industrial sales the margin is satisfactory.

"We are at present wrestling with this selling problem. The installation and servicing of domestic stokers does not bother us. We have the organization to guarantee satisfaction. It is expected that the manufacturer of the line we sell will introduce a new type of stoker to meet competitive prices of other domestic equipment. In that event it is up to us to produce the volume, and it must be real volume business for a large organization to earn a net profit. There is a large potential demand for stokers, and with price and quality being equal, we are going out for real business in the domestic equipment."

While the Harland Corporation has been doing a big job in selling industrial stokers, they have also been successful in selling magazine-feed heaters, oil burners, and gas-fired equipment. Regardless of the type of heating plant required, this firm is able to do the job and satisfy the buyer.



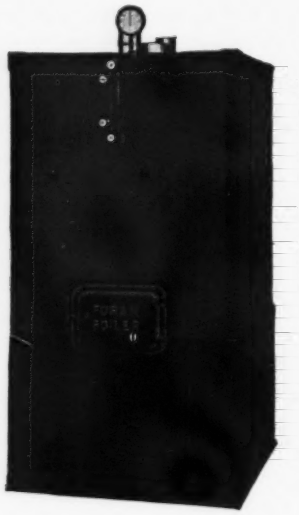
Above, left, plant of Fritch Milling Company, flour millers, Macungie, Pa. Stoker installed by Harland Corp. uses four tons coal daily. Below, front view of plant of the Easton Merchants Ice Co., Easton, Pa.

AUTOMATIC HEAT

FORAN

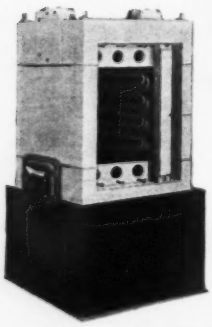
IMPROVED COPPER AND STEEL

TUBE BOILER



NOT JUST ANOTHER BOILER

. . . *but* a boiler that is efficient for oil, gas or coal; that uses one-third to one-half less fuel oil; that brings the water to a steaming circulation temperature in a fraction of the time it takes a cast iron boiler, and compares favorably in price and construction. A large number of U-shaped tubes (copper for oil and gas, steel for coal) are placed in the hottest part of the heat chamber. They are interchangeable for either kind of fuel without any change in boiler construction. Foran Boilers are different.



FORAN BOILER CO., INC.

General Sales Office:

11 West 42nd Street New York City

Foran Boilers with steel tube are ideal for coal and automatic stokers.

FORAN COPPER AND STEEL TUBE BOILERS for OIL-GAS & COAL

MORE HEAT

FORAN BOILER CO., 11 W. 42nd St., New York

Please send me without obligation on my part your free booklet describing Foran Improved Copper and Steel Tube Boilers.

Name.....

Address.....

City and State.....

DESIRABLE TERRITORY AVAILABLE FOR DISTRIBUTORS

How Much Gold Bronze Will Be Required to Paint a Certain Amount of Pipe?

To the Editor:

I would like to get some information about the following problem:

How much gold bronze will be required to paint the following lengths of pipe?

60 ft. of 2½ in. pipe
100 ft. of 2 in. pipe
105 ft. of 1½ in. pipe
140 ft. of 1¼ in. pipe
85 ft. of 1 in. pipe
40 ft. of ¾ in. pipe

Pennsylvania. C. H. A.

A paint manufacturer says that his company figures that one gallon of gold bronze will cover 600 sq. ft. of pipe.

Pipe, which is 1.328 ft. long and 2½ in. in nominal internal diameter, has an external surface area of 1 sq. ft. Dividing 60 ft. by 1.328 gives 45 sq. ft. as the external area of the 2½ in. pipe you have listed.

Applying the same process to the various quantities of pipe, you get the following results:

60 ft. of 2½ in. pipe 1.328 ft. long: 45 sq. ft.
100 ft. of 2 in. pipe 1.608 ft. long: 62 sq. ft.
105 ft. of 1½ in. pipe 2.01 ft. long: 52 sq. ft.
140 ft. of 1¼ in. pipe 2.301 ft. long: 61 sq. ft.
85 ft. of 1 in. pipe 2.904 ft. long: 29 sq. ft.
40 ft. of ¾ in. pipe 3.637 ft. long: 11 sq. ft.

260 sq. ft.

It will be seen that the total area in surface of the pipe you have listed is 260 sq. ft. Dividing this by 600 or the number of sq. ft. of pipe which one gallon of gold bronze will cover, we obtain the value of .43 as the quantity of gold bronze necessary to cover 260 sq. ft. of pipe. Making allowance for wastage, loss and other items, correspondent might figure that by purchasing one-half gallon of gold bronze, he will have enough to do the job.

◆

Gas Appliance Maker Prefers Dealers

To the Editor:

We are of course interested in the dealer-gas company co-operation plan for selling gas appliances, but we still take the stand that we always have, that a gas company is in business to sell gas and should not merchandise gas appliances. The program laid out would certainly work fine if it were adhered to, but there are many phases that are not at all practical.

We feel that it is a good plan to have gas appliances tested and approved by the American Gas Association, or some similar testing laboratory as suggested in Item 1, but we feel that the cost of such tests is prohibitive. We have manufactured water heaters for over fifteen years and we feel that the best proof of their safety, economy, dependability and service is their operation year in and year out without a single failure or explosion of any kind. If such tests were done at a more reasonable rate, we would feel that such action would be justified.

Gas companies state that they have to promote the sale of gas burning appliances in order to increase the consumption of gas. In our mind this is ridiculous because every manufacturer of gas burning appliances is interested in selling his appliances, and whether the gas company sells them, or the dealer sells them there will be just as many gas burning appliances put on their lines that will remain there and create a larger gas consumption. It is true that the gas companies put on campaigns and sell heaters at ridiculously low down payments and extend the payments over several years. A good many of these appliances, however, come back because the purchaser can not meet the payments and in the end, they do not obtain any larger gas consumption.

Gas companies are not good competitors for plumbers or manufacturers and we would prefer to sell our heaters through the plumbing and heating trade.

(Signed) A Manufacturer.

◆

Fuel Oil Use for Heat Increased

Although there was a decline in the total use of fuel oil for all purposes in the Middle Atlantic States in 1930, gas and electric power plants used about 6.66 per cent more than in 1929 and the fuel oil used in the heating of buildings was greater in volume in 1930 than in the previous year.

In the North-Central States, while railroads, steamships, gas and electric power plants and all industries, with a few exceptions, required less fuel oil in 1930 than in 1929, the chemical and food industries, the heating trade and fuel oil used at petroleum refineries showed a gain in 1930.

In the New England States in 1930 gains in demand for oil fuel were recorded.

The deliveries of gas oil and fuel oil during 1930, for all purposes as reported to the United States Bureau of Mines, Department of Commerce, by oil refining and marketing companies, totalled 385,080,162 barrels.

AUTOMATIC HEAT SECTION

Do You Know

That this particular Leland product is in successful operation on automatic stokers, oil burners and other domestic appliances where quietness is of prime consideration.

The unusual quietness of this motor is in great measures due to:

A simple and dependable brush-lifting mechanism that entirely does away with brush noise and wear—

A rubber - impregnated spring mounting that completely isolates vibration within the frame structure—

Consult Bulletin No. 28 for further light on these and other special points.

THE LELAND ELECTRIC CO.
DAYTON, OHIO, U. S. A.

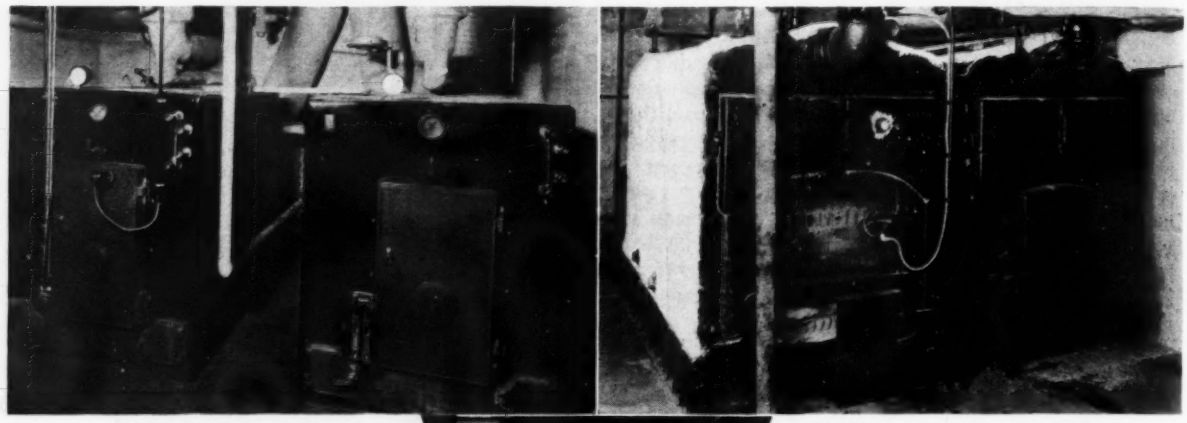
Canadian Address
Toronto

Cable Address
"Lelect-Dayton"

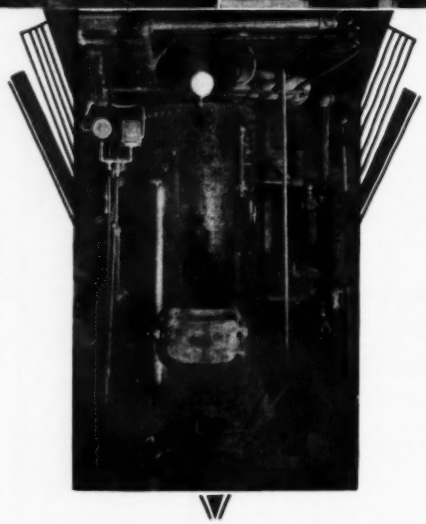
Leland Motors

AUTOMATIC HEAT SECTION

Modernizing Program Requires Eleven Oil Burners (Continued from Page 57)



Here are the boilers for the main house. The right hand one is not used



View of the high pressure steam boiler serving the dairy after the oil burner and controls were installed. Both high pressure steam and hot water are supplied

These are the greenhouse boilers. The oil burner is in the left one

(this was the first burner placed on the grounds), and the coal burning boiler was kept for emergency use. So far there has been no emergency, and the original boiler has not been used since the second boiler and the oil burner were put in. However, there is no coal in this greenhouse boiler room, which fact seems to express the confidence of the owner that the automatic equipment will continue to do the work required of it.

The burner of the greenhouse plant is controlled by a thermostat in the orchid room, which is about 200 ft. from the boiler. This is the farthest away from the boiler of any room, and the highest temperature is maintained here. The thermostat is set at 80 deg. Fahr. The temperature requirements in other rooms are taken care of by valves on the coils, and the effect of severe winds is met by the manual operation of the radiator valves. The greenhouse men do this and they have developed a very remarkable skill in holding temperatures to exact requirements at all times by a quarter turn of the valve wheel here and a half turn there. An experienced green house man is usually a dependable weather prophet in his small domain.

The long pipe lines and a drop of only 6 ft. in the systems, necessitated installing an electrically driven circulating pump to speed up the sluggish movement of water when the plant was first put in operation. When the oil burner was installed the burner control was connected to start and stop the pump when the burner was started and stopped.

In addition to the heat control thermostat in the orchid room there is a second one, set at 70 degrees, which closes a dry cell battery circuit and rings an alarm bell in the greenhouse living quarters occupied by the greenhouse men over the potting room, if the temperature in the orchid room should fall to 70 deg. Fahr. at any time during the year.

The potting room presented additional requirements and conditions which led to an unusual problem. The temperature should be just above freezing in this room during the cold weather and it is used for the storage of dormant plants. The room is about 50 ft. square in plan, and there is a ceiling height of about 15 ft. to accommodate boxed trees. A thermostat in the center of the room controls an oil burner in a small cast iron boiler, which heats water circulating through a single pipe around the building, along the walls. Trouble was experienced with the water freezing in the pipe at the northwest corner of the room, which is the worst exposure, when the temperature at the thermostat in the center of the room was above freezing. This problem was solved by placing a clamped type temperature switch on the pipe at that corner. This switch starts an electrically driven circulating pump at the boiler whenever the water temperature at the northwest corner drops below 35 deg. Fahr. There is no connection between the pump control and the burner operation, as the water circulates satisfactorily when the burner is operating and the water is warm. The movement of water has been effective in preventing trouble with freezing.

The recreation building, the last structure to be completed, contains an auditorium, the latest developments in screen and other equipment for showing either silent or sound moving pictures, game and lounge rooms, and kitchen space and equipment. The auditorium is heated by means of steam heating coils in an air conditioning unit. Air can be drawn from the outside, or all of it can be recirculated. Also intermediate adjustment can be made. The air is cleaned by water sprays, which also furnish the needed moisture in the winter, and the same sprays

cool and dry the air in the hot weather. The other rooms in this building are heated by direct steam radiation. There is one thermostat and a humidostat, both located in the auditorium. The oil burner operates between boiler pressures of 2 and 5 lb. and is controlled by means of a pressure switch. The thermostat in the auditorium is connected directly to motor operated valves on the steam lines to the heaters in the air conditioning unit. The humidity is controlled by regulating the amount of heat taken up by the air before and after it passes through the water sprays. This control was provided for by making the pre-heater and re-heater each of two coils. For summer use the air is cooled to a very comfortable temperature and the humidity reduced materially by passing it through the spray. The highest temperature reached by the spray water is about 65 deg. Fahr. Air leaving the unit can be cooled to under 70 deg. Fahr. on the hottest days.

There are five small buildings, each with one oil burner, but with no particularly important or interesting features. The garage with space for eight cars and two apartments above, is heated by steam and the thermostat is located in one of the apartments. The guest house, which is a small detached residence, and the boarding house, where a number of the employes live, are each heated by gravity hot water systems. The gate lodge, a small detached house occupied by one of the employes and his family, and a house occupied by the superintendent and his family are each heated by a steam system.

V

The heating equipment of the building occupied by the dairy and the superintendent's office is interesting in that high pressure steam for washing and sterilizing the dairy equipment and hot water for heating, are taken from one boiler and one oil burner. Originally this building had three coal burning boilers, one being the boiler for high pressure steam, another for heating water, and a third for domestic hot water. During the process of changing to automatic heat it was decided that the domestic water heater was not necessary. The demand for high pressure steam is of short duration and occurs only twice a day, so an indirect connection from the steam boiler was made to the hot water radiation system, and the hot water boiler was removed. The present connection makes use of heat formerly wasted before and after the

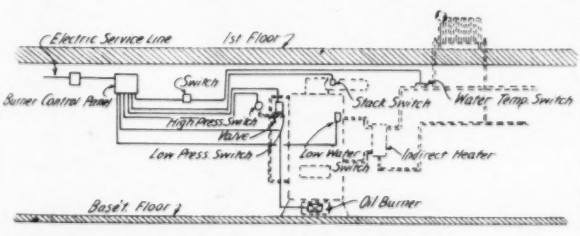
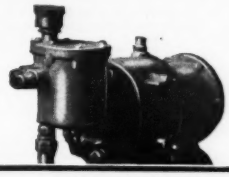
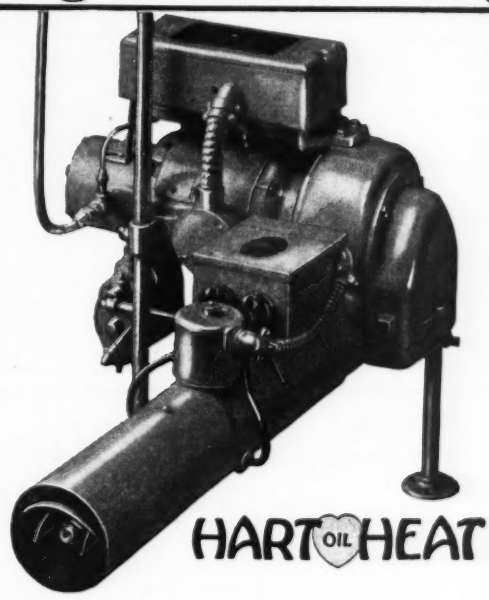


Fig. 4—This elevation shows the details of the installation for the dairy and office building. The one boiler and burner serve three separate heating demands

AUTOMATIC HEAT SECTION



The HART *new* 1932 plan means longer margins--*more money*



Here's an oil burner you can sell, and sell at a profit. Pioneer in the oil burner field, HART again proves its leadership with a plan for 1932 that conquers present day competition. Investigate — mail coupon today for details of plan and —

Sensationally Low Prices for 1932

Vacuum Feed, exclusive on the HART, prevents flooding, eliminates intricate mechanism—offers the greatest single selling point in oil burners today.

Absolutely quiet — No noise, when it starts, while it burns, or when it shuts off. No belt or gears—fan and pump mounted on oversize motor shaft. Absolute comfort and freedom.

Magnetic self-cleaning Electrodes— Prevents dirty firing points, insures positive, unfailing ignition —eliminates service.

Low pressure atomization makes possible the use of just one size nozzle for entire range. An extra large nozzle orifice positively prevents clogging — there's no wear out to it.

HART Oil Burner Corporation

Dept. 321 Peoria, Illinois

THIS COUPON BRINGS NEW PLAN

NAME

ADDRESS

TOWN

STATE

321

AUTOMATIC HEAT SECTION

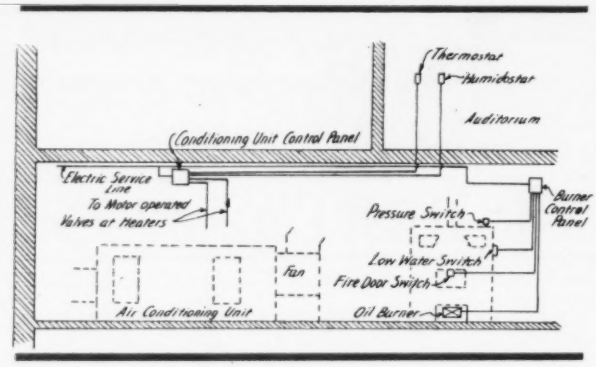


Fig. 5—In this elevation the hook-up for the equipment in the recreation building is shown. The variable demands imposed on this system called for flexible operation

periods of using high pressure steam, and at the same time keeps the high pressure boiler ready at all times for heavy demands.

While high pressure steam is used, the burner is controlled by a pressure switch on the boiler set to maintain a pressure between 40 and 50 lb. When the demand for high pressure steam is past, a switch is opened which connects a temperature switch on the hot water line, set to stop the burner at a water temperature of about 160 deg. Fahr. When the boiler pressure has dropped to about 10 lb., a valve is opened which admits steam to another pressure switch set to start and stop the burner between pressures of 5 and 10 lb. The high pressure switch then remains closed, as it is set to close at 40 lb. The controls then keep the boiler pressure from exceeding 10 lb., and hold the water temperature very close to the switch setting of 160 deg. Fahr. When there is another demand for high pressure steam the water temperature control is cut out by the switch, and the valve to the 5 to 10 lb. pressure switch is closed. The high pressure switch now starts the burner and keeps it running until the high limit of about 50 lb. pressure is reached. The control system required some experimenting in working out, but now its operation is satisfactory. The only manual operation is the handling of the one switch and one valve. The boiler pressure must be down to about 10 lb. when the steam is admitted to the low pressure switch, as a high pressure would damage the instrument.

V

Ignition is by gas pilots in all cases. In general, the steam boilers have pressure switches and the hot water boilers have water temperature limit switches, for safety controls. Each of the burners is also equipped with a switch on the fire door or in the stack to shut off the motor if ignition of the oil by the gas pilot fails for any reason. An overflow bucket to shut off the oil to the burner is an additional control. Each oil tank is underground, and oil is pumped automatically by electricity to a small wall tank from which it flows by gravity to the burner.

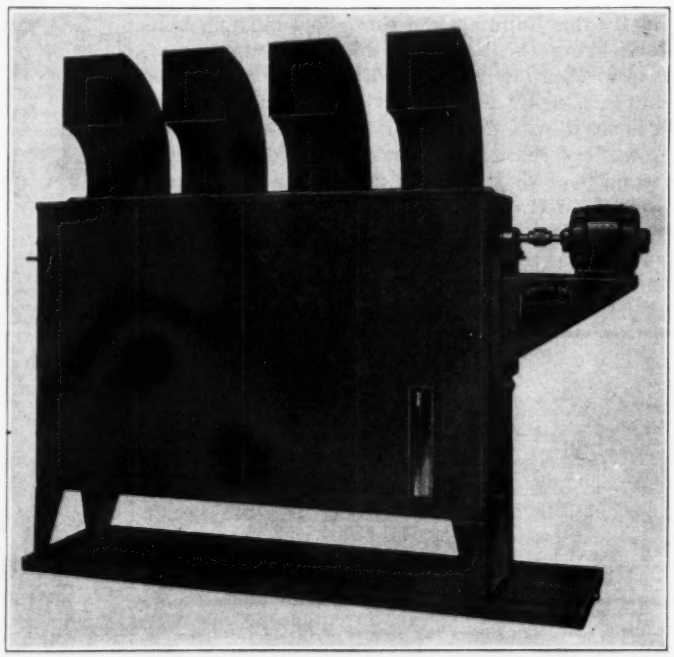
COOLING FOODS AND OTHER PRODUCTS *ECONOMICALLY!*

THESE new Unitherm Coolers can be used for all types of cooling above 32° F.—in food and other storage plants, industrial process work, etc.

They have a wide range of refrigerating capacities, discharging the cool air at high velocity near the ceiling and above the product. This cool air diffuses throughout the room. Thus a constant temperature is easily and efficiently maintained.

A Unitherm Cooler requires minimum piping and connections, saving labor and materials. It eliminates costly bunkers or wall coils. And, in case of plant alterations, it can be moved to a new location at small expense.

For full information, write for Bulletin 77. **CLARAGE FAN COMPANY, Kalamazoo, Michigan.**



CLARAGE
UNITHERM COOLERS

These are the things for which the American public will spend millions ✦ ✦ ✦ ✦ ✦

OIL burners, stokers, gas boilers, burners and their accessories —automatic heat, the things American home and building owners and builders will spend millions for within the next several years.

And why not? They represent the culmination of man's struggle through the ages for healthful, convenient comfort in the places where he lives and works.

Automatic heat as it has been developed today gives the public what it wants—dependable heat that requires the minimum of attention at the lowest cost.

You have been and will continue to be the foremost automatic heat dealer serving the American public. You have waited for DOMESTIC ENGINEERING's new publication within a publication, AUTOMATIC HEAT.

Now you have viewed the initial numbers and we'd like your comments upon it. We'd like to repeat to you that we are anxious to have your questions on automatic heat, anxious to help you with your sales problems and with the matter of deciding upon the best types of automatic heat for you to sell.

We are anxious to help you get an ever increasing share of the millions the American public will spend for these things. AUTOMATIC HEAT will continue to bring you information of the kind you have sampled in this and previous issues.

Domestic Engineering

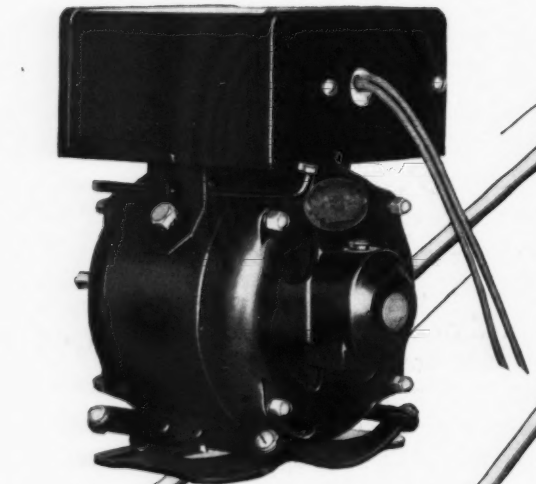
1900 Prairie Avenue

Chicago

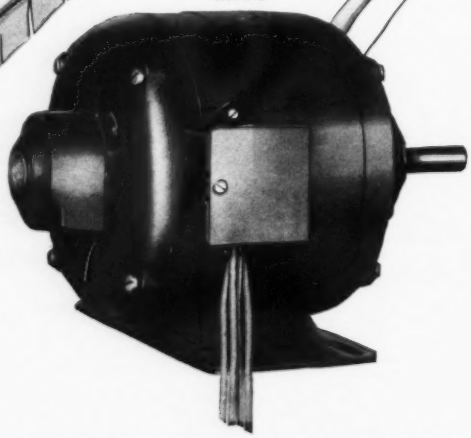
AUTOMATIC HEAT SECTION

TWO GREAT HITS

RIGHT FROM THE START



TYPE KC . . . famous capacitor-motor, engineered to meet modern oil-burner requirements



TYPE KH . . . a dependable resistance split-phase drive definitely matched to the characteristics of the modern oil burner

TWO great oil-burner drives have scored from the start . . . the Type KH and the Type KC. They have scored again and again on brilliant performance, dependable operation, and incomparable suitability for the job.

Investigate these proved power units. Compare each with your own conception of a perfect drive. You'll find them simple in construction, unusually quiet in operation, and high in efficiency. And remember, whether you use standard or highly special motors, General Electric application engineers will always be glad to coöperate in solving your drive problems. There's a G-E office near you; "look into" G-E motors.

210-178

JOIN THE "G-E CIRCLE"—SUNDAYS AT 5:30 P. M. E. S. T. ON N. B. C NETWORK OF 54 STATIONS—WEEK-DAYS (EXCEPT SATURDAY) AT NOON

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SALES AND ENGINEERING SERVICE IN PRINCIPAL CITIES

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Supply News

What's Doing In Business

For Manufacturers, Wholesalers and Salesmen

Crane Co. Appoints Two New Directors; Officers Are Re-Elected

At the annual meeting of Crane Co., held recently in Chicago, Ill., E. M. Ashcraft, Jr., and E. A. Russell were elected directors of the company to fill vacancies, and the retiring directors and the officers were re-elected. Mr. Ashcraft is a member of the legal firm of Ashcraft & Ashcraft, counsel for Crane Co. Russell is vice president of the Otis Elevator Co., Chicago, and is a brother-in-law of the late Richard T. Crane, Jr., former president of Crane Co.

The officers of Crane Co. are: J. B. Berryman, president; C. A. G. Wayman and A. F. Gartz, Jr., vice presidents, manufacturing division; G. H. Periolat, assistant vice president, manufacturing division; C. D. Little, H. W. Seymour and C. R. Crane, II., vice presidents, sales division; W. J. Clark, vice president, real property; P. T. Kelly, vice president, finance division; D. G. Park, vice president; purchasing division; L. B. Peebles, vice president, Pacific Coast zone; P. R. Mork and J. G. Ordway, vice presidents; W. Evensen, treasurer; J. H. Steiner and R. O. Samuelson, assistant treasurers; H. P. Bishop, secretary; J. S. Bell, J. K. Prentice and J. A. Brough, assistant secretaries.

The directors, in addition to Mr. Ashcraft and Mr. Russell, are: J. B. Berryman, W. J. Clark, C. R. Crane, II., Cornelius Crane, H. P. Crane, W. Evensen, A. F. Gartz, Jr., V. E. Flodin, P. T. Kelly, C. D. Little, J. A. Murphy, D. G. Park, H. W. Seymour, C. R. Smith and C. A. G. Wayman.

◆

400 Reading Iron Co. Employes Return to Work

About 400 workers at the Oley street plant of the Reading Iron Co., Reading, Pa., returned to work on January 25 when the No. 1 plant started operating eight of its fourteen furnaces and No. 2 plant started its full complement of fourteen furnaces.

◆

W. S. Dickey Clay Mfg. Co. in Friendly Receivership

W. S. Dickey Clay Mfg. Co. of Kansas City, Mo., has been placed in receivership due to the necessity of a financial re-organization. The receivers appointed are Fred L. Dickey and Clifford Histed, the former being a son of the founder and president of the company. In going through the process of an equity receivership—a friendly, co-operative move on the part of bondholders and stockholders—it is announced that there will be no disintegration of the company's organization and no sale of its various plants or properties. The business will be continued without interruption and there will be no change in the personnel of the organization.

Manufacturers Announce Cross Licensing of Oil Burner Patents

The Motor Wheel Corp., of Lansing, Mich., and the Quaker Mfg. Co., of Chicago, Ill., announce that a cross licensing agreement has been effected with respect to their oil burner patents. These patents relate to a process of combustion and the apparatus for practicing that process. The apparatus is commonly known as the carburetor type of burner, and the process is sometimes referred to as the hydroxilation method of burning fuel oil.

The manufacturing division of the Quaker Mfg. Co. has been transferred from Chicago Heights, Ill., to Lansing, Mich.

Both Quaker Mfg. Co. and Motor Wheel Corp. announce that there has been no merging of the two companies, and each will continue its sales activities independently. No mutual financial nor management arrangement has been effected.

◆

Medina Iron & Brass Co. Is Reorganized

Medina Iron & Brass Co., Medina, N. Y., has been re-organized under a new ownership, succeeding that of Mrs. DeCourcey Cleveland who has been the principal stockholder since the death of her husband in 1927. The new personnel includes William J. Kirby as president and chairman of the board; William A. Munson, vice president and J. D. Johnson, secretary and treasurer. Mr. Kirby also is associated with the Sommerville Iron Works, Sommerville, N. J. An increased production schedule is contemplated by the new owners.

◆

Good Year Is Predicted at Sales Conference of Bryant Heater & Mfg. Co.

The annual sales conferences of the Bryant Heater & Mfg. Co., Cleveland, Ohio, were held during the weeks of January 11th and 18th. Instead of the entire sales organization meeting in Cleveland in a general convention as has been the custom in the past, regional meetings were held in Philadelphia, Cleveland and Chicago.

Informal round-table discussions featured the meetings with periods devoted to consideration of product, market and sales policies and practices. A continuation of the company's national advertising and sales help program was announced.

Representatives and field men from each of the company's forty-eight branch offices attended the meetings. In view of the exceptionally satisfactory volume of business produced in 1931 the outlook for the ensuing year is most encouraging, according to officials of the company.

Uniflow Mfg. Co. Boosts Operations

Uniflow Mfg. Co., Erie, Pa., manufacturer of pumps and water softeners, has placed its works on a full 5½ day week schedule of operations.

◆

Mason Regulator Co. Acquires Neilan Co.

The Mason Regulator Co., Boston, Mass., has acquired the Neilan Co., Ltd., Los Angeles, Calif., manufacturer of heat regulating equipment. Louis H. Brendel, formerly advertising manager of the Neilan company, has been transferred to Boston where he will direct the advertising of both companies.

◆

Oil Burner Manufacturer Increases Sales 31 Per Cent in 1931

The Timken Silent Automatic Co., Detroit, Mich., increased its sales of oil burners 31 per cent in 1931 in comparison with 1930, according to E. V. Walsh, general manager. This record follows a 56 per cent increase in sales in 1930 and is the sixth consecutive annual sales increase which the company has made.

E. V. Walsh

Since making the 31 per cent increase in sales, The Timken-Detroit Co. has purchased the Silent Automatic Corp. to form The Timken Silent Automatic Co. Mr. Walsh, formerly general sales manager of The Timken-Detroit Co., has been appointed to the same position with the new company. His success in directing the sales organization of the former Timken organization resulted in his appointment to handle the consolidated sales organization.

Mr. Walsh has been connected with the Timken organization for six years. He was made sales manager of the Detroit retail factory branch when he joined the company in 1925 and was promoted to general sales manager in November, 1927. Before his connection with Timken, he was assistant sales manager of the International Time Recording Co. of New York.

◆

Leighton Supply Co.'s Annual Sales Conference

The traveling representatives of the Leighton Supply Co. of Fort Dodge, Iowa, attended this company's annual sales conference in that city during the week beginning January 18. C. E. Anderson, sales manager of the company, presided at the conference. The following manufacturers' representatives were also in attendance: J. M. McCoy, The Trane Co., La Crosse, Wis.; E. L. Murray, Ohio Brass Co., Mansfield, Ohio; C. J. Orrison, Alabama Pipe Co., Anniston, Ala.; T. Kaysen, Jr., The McKays Co., St. Paul, Minn.; I. F. Gordon, F. E. Myers & Bro. Co., Ashland, Ohio; Ed. Biersmith, Columbian Steel Tank Co., Kansas City, Mo.; L. L. Anthony, The Hooven & Allison Co., Xenia, Ohio; H. H. Shuell, EverHot Heater Sales Co., Detroit, Mich., and Carl O. Ruchte, Kohler Co., Kohler, Wis.

460 Per Cent Gain Reported by Electric Refrigerator Manufacturer

Norge Corp., division of Borg-Warner Corp., Detroit, Mich., makers of domestic electric refrigerators, report for the twelfth consecutive month of 1931 an increase in sales. The December gain of 417 per cent against the same month in 1930 shows the Norge Corp. with a net gain for 1931 of 460 per cent.

Howard E. Blood, president of Norge Corp., in commenting on the situation, said, "The electric refrigeration industry as a whole prospered last year. Our own company showed a sales gain every month during 1931 over 1930, and our pre-season orders forecast another satisfactory year during 1932. We are optimistic and can see great things ahead for those manufacturers who will intensify their efforts during 1932.

"There will always be a demand for the product which is well made and which is so publicized as to attract popular attention. Sales organization is important, of course; management has been faced with problems never so strict and severe as those confronting organized business today."

The Norge Corp. is conducting a series of distributor-dealer meetings in the principal cities throughout the United States, to acquaint its selling organization with the details of the 1932 line and to present the sales promotion and advertising plans for the coming season. These meetings are being held under the direction of John H. Knapp, vice president and director of sales. In commenting on the business outlook, Mr. Knapp said, "Already our orders are far in excess of a year ago, with the result that our plant in Detroit, as well as our cabinet factory at Muskegon Heights, Mich., are operating with full forces."

◆

Changes Name to Summit Plumbing Supply Co.

The Millburn Plumbing Supply Co., Summit, N. J., has changed its name to Summit Plumbing Supply Co. and has moved to larger quarters at 75 Summit avenue. The change was made in order to avoid confusion of the name Millburn with the fact that the company is located in Summit.

◆

New York Wholesale Firm Incorporates

Ben Kramer, plumbing and heating wholesale firm of New York City, has been incorporated under the name of Ben Kramer, Inc. The following have been elected officers to continue the business: Ben Kramer, president; Richard J. Berger, vice president; Arthur H. Kramer, secretary-treasurer.

◆

Allen-Bradley Co. Exhibits Products in Chicago

The Allen-Bradley Co., Milwaukee, Wis., will display units representing its entire line of motor controllers and accessories in Chicago during the four weeks beginning February 1.

The fifth floor of the Engineering building, 205 West Wacker drive, has been reserved for this display, which will consist of several hundred pieces of Allen-Bradley control equipment. The exhibit will be in charge of Eugene F. LeNoir, assisted by several members of the Allen-Bradley engineering staff, who, during the four weeks of the exhibit, will give frequent talks.

Frozen Solid...then

Thawed out with a Blow-Torch!

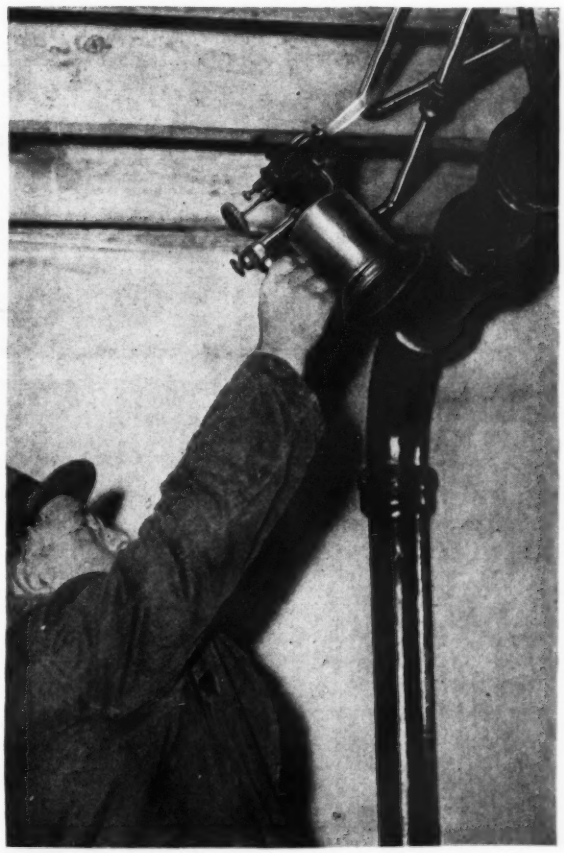
It happened to P R Pipe, in a New Jersey realty development. Water had been turned on in five homes, sold but not yet occupied. That night, the thermometer dropped to 8 degrees above zero and the plumbing systems (all of P R Pipe) froze up solid. All five systems were thawed out with blow-torches . . . an unusual practice . . . yet P R Pipe successfully withstood this terrific test.

P R Pipe has great ductility. It has withstood up to 10 or 12 freezings without bursting.

P R Pipe is 99.9% pure copper, completely deoxidized and having a gun-barrel inside finish, free from flaws. It is rust-proof, and has the effective thickness of S.P.S. (standard pipe size) pipe. P R Pipe can be used with all standard compression or solder fittings.

It comes in two tempers: hard, for new work and exposed runs; soft, for concealed replacement work and services.

When you install P R Pipe, you are giving your customers lifelong plumbing satisfaction combined with economy. You are building for yourself a reputation that means increased business, more profits. Why not find out all about P R Pipe and also about Revere Brass Pipe? For further information, address Revere Copper and Brass Incorporated, 230 Park Ave., New York City.



P R Pipe, being 99.9% pure copper, expands with each freezing, up to its elastic limit. This limit is so great that sections of P R Pipe have been filled and frozen up to 12 times before rupture!

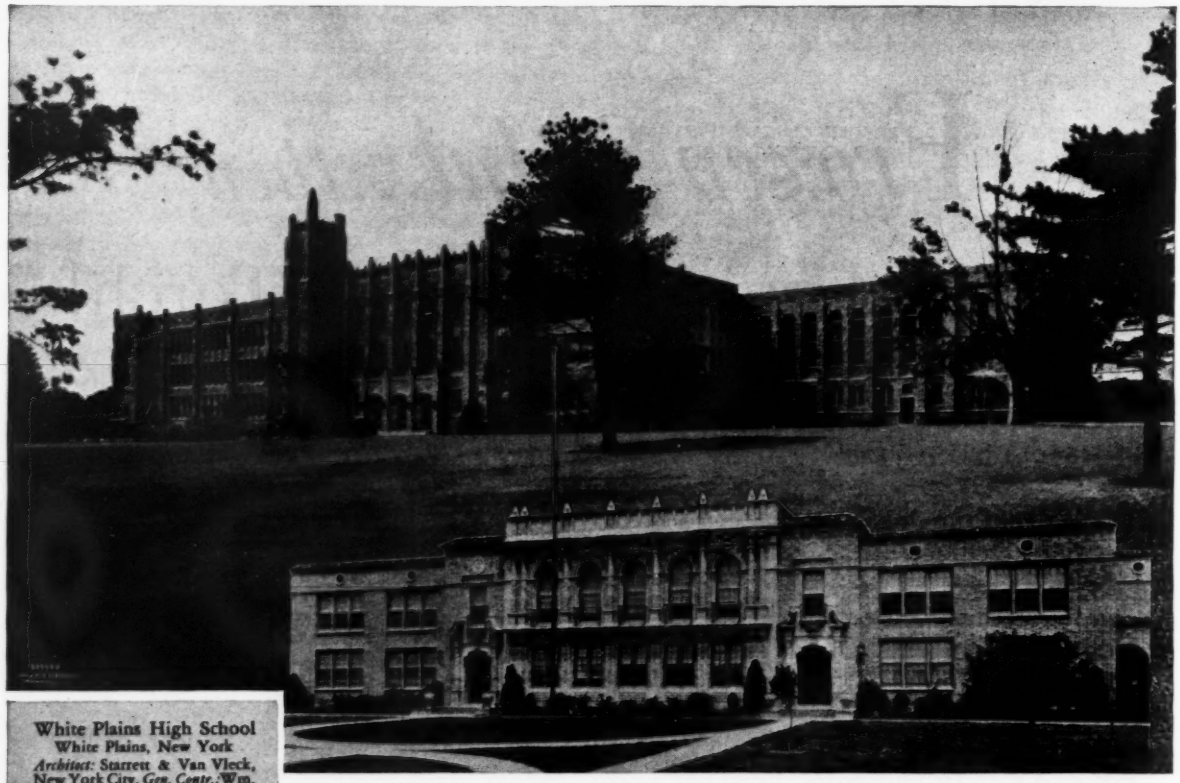
Revere Copper *and* Brass

INCORPORATED

P R PIPE

Baltimore *Division, Baltimore, Md.* Michigan *Division, Detroit, Mich.* Higgins *Division, Detroit, Mich.*
Dallas *Division, Chicago, Ill.* Taunton-New Bedford *Division, Taunton, Mass.* Rome *Division, Rome, N.Y.*

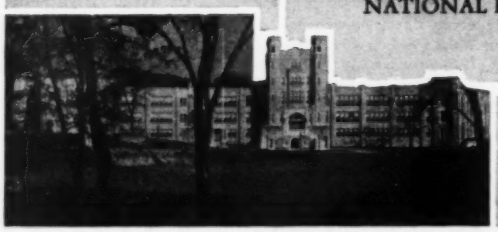
EXECUTIVE OFFICES: NEW YORK CITY
GENERAL OFFICES: ROME, N.Y.



White Plains High School
White Plains, New York
Architect: Starrett & Van Vleck, New York City, *Gen. Contr.:* Wm. Busse, Portchester, N.Y., *Heating Contr:* Frank Farrell, Newark, N.J.

Harlingen High School
Harlingen, Texas
Architect & Engr: Dewitt & Washburn, Dallas, *Gen. Contr:* W. A. Velron Constr. Co., Brownsville, Tex., *Heating Contr:* Dallas Heating & Vent. Co., Dallas, *Plbg. Contr:* McCarty Plbg. Co., Harlingen

Junior High School
New Rochelle, N. Y.
Architect: Starrett & Van Vleck, New York City, *Heating Contractor:* Gillis & Geoghegan, New York City



Buildings Worthy to Inspire the COMING GENERATION

THE beauty, dignity, and appropriateness that have characterized American school architecture more and more in recent years, are well illustrated in the splendid buildings here shown. Comfort, convenience, and enduring usefulness have been provided for in all the details of planning and equipping them, within and without.

For the services in which pipe has an important though inconspicuous place, in these as in other like examples from New York to Texas, the major tonnage was NATIONAL Pipe. Thus, in the designing and construction of schools, as with large building enterprises generally, the preference for NATIONAL has definitely established it as—

America's Standard Wrought Pipe

NATIONAL TUBE COMPANY · Pittsburgh, Pa.
Subsidiary of United States Steel Corporation

NATIONAL PIPE

Belknap Mfg. Co. Appoints New Sales Representatives

The Belknap Mfg. Co., Bridgeport, Conn., has announced the appointment of John W. Gannon of 30 Church Street, New York City, as its sales representative in New York state and Northern Pennsylvania.

The company has also announced the appointment in a similar capacity of George H. Wobensmith, formerly vice president of the Hajoca Corp., Philadelphia, Pa. Mr. Wobensmith will represent the Belknap firm in Southern New Jersey, Eastern Pennsylvania, including Philadelphia, Delaware, Maryland and the District of Columbia.

◆

U. S. Supply Co. Holds Annual Sales Meeting

The U. S. Supply Co., Kansas City, Mo., held its annual sales meeting at the general offices in Kansas City, January 13 to 17. The meeting was attended by all branch managers and salesmen. The company has branches in Omaha and Lincoln, Nebr., Wichita, Kans., and Oklahoma City, Okla.

An intensive study of products and merchandising methods featured the meetings, and plans for the coming year were also discussed. On the evening of the 15th a banquet was held, which was the only social event of the entire meeting.

◆

Moves Milwaukee, Wis., Office

The National Radiator Corp. has moved its Milwaukee, Wis., office from 2015 West St. Paul avenue, to 511 East Mason street.

◆

R. Lavin & Sons Name Cleveland Representative

Frank A. Mitchell, Inc., Bulkley building, Cleveland, Ohio, has been named Cleveland district representative for R. Lavin & Sons, Chicago, producers of brass and aluminum ingot.

◆

Death of James H. Davis

James H. Davis, a charter member and a life member of the American Society of Heating and Ventilating Engineers, died recently at his home in Chicago in his 79th year. He served on many of the committees and on the council of the A. S. H. V. E., and he was one of the most active members in the establishment of the Society's research laboratory and continued his interest in this branch of the Society's activities throughout the active years of his life.

In his long and useful career Mr. Davis served in many branches of the heating and ventilating profession and was widely known and held in high esteem among his fellow engineers.

On October 12, 1853, James H. Davis was born at Oswego, N. Y., and after receiving his schooling entered the steam heating business as an apprentice with Baker Smith & Co., Chicago. He was with this company from 1878 to 1890, serving successfully as estimator, designer, superintendent and secretary, and was familiar with all the operations of designing and erecting steam and hot-water heating and ventilating plants.

Later he served with several heating contracting firms, F. W. Lamb & Co., Chicago, Missouri Steam Heating Co., St. Louis, and the American Heating Co., St. Louis.

During his many years of service with both Warren Webster & Co. and American Radiator Co. he witnessed the growth of Chicago, and supervised the design and installation of heating and ventilating plants in many famous old buildings such as the original Palmer House, the Pullman Building, Chamber of Commerce and a score of others.

Most of his business life was spent in Chicago and since his retirement from active work he has remained in the city. He is survived by his widow, a son, and a daughter.

◆

New York University Engineering Society Plans Annual Party

The New York University Heating & Ventilating Engineers Society will hold its annual dinner, dance and entertainment at the Hotel Taft, New York City, on February 20.

The members of the society recently made an inspection tour of the power plant of the Metropolitan Tower, in New York City. These tours are arranged for educational purposes, and are open to engineers and student engineers.

◆

Death of M. F. Whelan

M. F. Whelan died January 6 at his home in West Bay street, Trenton, N. J., after an illness of several months. He was in his 45th year and had spent the last fifteen years of his business career with Thos. Maddock's Sons Co. When this firm was merged with the Standard Sanitary Mfg. Co., Mr. Whelan continued as manager of the Trenton office.

◆

Goulds Pumps, Inc., Make Changes in Executive Staff

H. S. Fredenburgh, associated for more than twenty years with Goulds Pumps, Inc., Seneca Falls, N. Y., has resigned as secretary and comptroller of the company.

Seabury S. Gould, second vice president of the company, also becomes secretary, and succeeds the late William D. Pomeroy as a member of the board of directors. Hamilton Garnsey, Jr., has been appointed assistant to the president.

The other members of the executive staff continue in their present duties: Norman J. Gould, president; E. William Medden, treasurer; H. W. Foulds, vice president in charge of sales; John Mann, chief engineer; and Thomas I. S. Boak, works manager.

◆

Method of Noise Elimination Discussed at St. Louis Chapter Meeting

Three new names were added to the membership roll of the St. Louis Chapter of the American Society of Heating and Ventilating Engineers at its January meeting. They are: Stoddard Roseburgh, W. R. McCormick and Walter C. Heinzle.

Earl H. Beling, research engineer, Herman Nelson Corp., Moline, Ill., read an instructive paper, entitled "The New Science in Ventilation," and discussed the

proper application of a modern ventilating system that would comply with the latest findings in the field of air conditioning research. Archie Gordon, acoustical engineer, Hamilton Co., St. Louis, read a paper, entitled "Acoustics as Related to Heating and Ventilating." His paper dealt with the elimination of noises in a ventilating system.

President J. M. Foster, appointed E. B. Langenberg, as counsellor and C. A. Pickett as alternate to assist J. M. Foster, chairman, and E. A. White, counsellor, for the Associated Engineering Society Committee, to represent the St. Louis Chapter of the A. S. H. V. E.

Walter Kaiser advised the chapter that the council of the city of St. Louis is drafting a new building code and that this would be an excellent opportunity to endorse a ventilating code with an attempt to have a code adopted by the city. A motion was made by L. Walter Moon to appoint a code committee to look into the various city and state codes and report at the next meeting of the chapter. President Foster appointed the following on this committee: L. Walter Moon, chairman; Sam Hallett and J. W. Cooper.

Business Personals

HARRY H. BROWN has been elected assistant vice president of the Heating and Plumbing Finance Corp., a division of American Radiator & Standard Sanitary Corp., New York City. Prior to this promotion, Mr. Brown was manager of the Heating and Plumbing Finance Corporation's Western office, with headquarters in Chicago. He first joined the corporation as credit manager and later served in the capacity of special field representative.

THOMAS F. MAHER has been elected president of the Chapman Valve Mfg. Co., Indian Orchard, Mass., to succeed ADOLPH W. GILBERT. Mr. Maher has been with the company for 20 years and for 12 years was sales manager, being appointed general manager three months ago. Mr. Gilbert headed the Chapman company for 21 years.

EDWARD LEE IVES, vice president of H. A. Bassert & Co., A. M. Byers Co., Pittsburgh, Pa., and president of the Open Hearth Combustion Co., Chicago, has been elected a director of the Chicago Gulf Corp., a natural gas company.

LOUIS BARNES has been appointed general sales manager of the Ames Iron Works, Oswego, N. Y., a division of Pierce, Butler & Pierce Mfg. Corp., New York City, according to an announcement by Joseph A. Bohn, vice president and general manager of the Ames organization. Mr. Barnes has been associated with the company for a number of years in Philadelphia, Pa.

ARTHUR J. HOLMES has been appointed sales manager of Bon-Air Radiator Corp. of Boston, Mass. Mr. Holmes has a thorough understanding of sales and engineering matters in the heating field as a result of having been associated with the Richardson & Boynton Co. of New York City for the past eighteen years. He will make his headquarters at the corporation's home office in Boston.

J. L. STULSAFT, manufacturers' agent, has been appointed representative of the American Boiler and Foundry Co. in the metropolitan district of New York and in New England. Offices will be located at 501 5th avenue, New York City.

W. J. REEDER has been appointed manager of the St. Louis, Mo., branch office of Bailey Meter Co., Cleveland, Ohio, succeeding C. J. Prendergast, deceased. For the past seven years, Mr. Reeder has been connected with the Chicago branch office of the company where he has had a wide experience in the solution of metering, controlling and regulating problems. He will be assisted by J. R. BUSS, who has been located in the St. Louis district for the past four years. Their headquarters will be at 127 Waterman building, 457 North Kingshighway.

L. C. MITCHELL, president of the J. B. Wise Co., Watertown, N. Y., has been re-elected a director of the Jefferson County National Bank of Watertown. He has also been elected to the board of directors of the Jefferson Securities Corp., also of Watertown.

MERWIN K. HART, president of Hart & Crouse Co., Utica, N. Y., and president of the New York State Economic Council was the principal speaker at the annual chamber of commerce dinner at the Hotel Woodruff, Utica, on January 28.

WILLIAM W. MORGAN, of the firm of Derbyshire, Mack & Morgan, Philadelphia, Pa., has been appointed assistant director of supplies and purchases of the City of Philadelphia. Although he has been active in civic and political affairs for many years, this will be the first time he has held public office. Mr. Morgan has been associated in various capacities with the plumbing and heating industry since 1892, and is a native of Philadelphia. He was formerly Philadelphia manager for Warren Webster & Co. of Camden, N. J., and more recently was with the Imperial Brass Mfg. Co., of Chicago. Mr. Morgan is a past president of the National Association of Plumbing and Heating Salesmen, as well as of the Plumbsteam Club of Philadelphia. At the present time Mr. Morgan is a member of the board of directors of the Plumbing and Heating Development League of Philadelphia.

William W. Morgan

C. B. GRAVES has been appointed manager of the Refrigeration Division of the Westinghouse Electric & Mfg. Co., Mansfield, Ohio, succeeding Carl D. Taylor, who has resigned to become vice president of the Elin Co., of Philadelphia. Mr. Graves was formerly vice president and general manager of the Standard Home Utilities Co. of Chicago.

Burnham

HOT WATER SUPPLY

Boilers

Making Your Contract—Whether In Bridge or Boilers

AGAINST any "lead" by the "opposition" you'll "make your contract" with Burnham Hot Water Supply Boilers.

Whatever the hot water heating "trick" to be taken, Burnham "holds the cards." From little 30-gallon tanks to the big ones of 3,800 gallons is the range of the Burnham "strong suit."

The Burnham "ace of trumps" is the High Pressure Hot Water Supply Boiler that comes in 4 to 12 sections, with 21 in. or 27 in. grates. It gives almost instant hot water supply because of its extra heat absorbing surface.

Remember the basic point in the Burnham "Bidding System"—It's the long fire travel that makes a short fuel bill.

And whatever the fuel or firing requirement, there's a Burnham Boiler.

BOILERS ◆ RADIATORS VALVES ◆ ACCESSORIES

Burnham Boiler Corporation

IRVINGTON NEW YORK

Representatives in all principal cities of the United States and Canada

RESEARCH *when* APPLIED *to* ENGINEERING

Points the way to LARGER PROFITS

FOR a quarter of a century, Airco-Davis-Bournonville has been engaged in the research that is today largely responsible for modern welded piping.

Research that points the way to progress and leadership cannot be confined to the laboratory. It must be applied in industry if discoveries are not to remain laboratory curiosities.

Airco Applied Engineering is an organization trained to apply, under practical working conditions, the achievements of the laboratory. It is a service maintained to study your individual construction, maintenance and re-construction problems. It will attempt to help you increase your profits through the proper use of Airco oxyacetylene welding and cutting processes.

Upon receipt of your request we will schedule an Applied Engineering Representative to call and review recent developments in the installation of welded piping that may enable you to achieve surprising economies. Only these men who are in contact with every job that comes to Airco Applied Engineering, can bring you the full knowledge of recent developments. Are you taking advantage of this service which is maintained for you?

Airco Applied Engineering Representatives will call, not in the role of salesmen, but in an attempt to offer suggestions that will reduce costs and give your customers better installations.

Airco Offices

Baltimore
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San Francisco
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Shreveport, La.
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Wheeling

Represented in Texas by Magnolia Airco Gas Products Co., Houston, Beaumont, Wichita Falls, El Paso, Ft. Worth and San Antonio.

ILLUSTRATED above are the first and last chapters of the story of an Airco Applied Engineering job. At the left is the laboratory "bomb test" of oxyacetylene welds on extra heavy pipe, under high pressure. At the right is a completed high pressure steam installation. Long before this last chapter was "written" by Airco Applied Engineering Representatives, in the field, research in the Air Reduction Sales Company's Laboratories had determined specifications for such work. The "bomb test" proves the strength of pipe welds at pressures up to one ton per square inch. Through research in the laboratory, welding technique is perfected and successful field work is assured.

Specifications on the high pressure steam system illustrated at the right are as follows:

- 4-inch extra heavy wrought iron pipe—20-ft. random lengths.
- 5-in., 6-in., 8-in., 10-in., 12-in. extra heavy lapwelded steel pipe—40-ft. double random lengths.
- Operating pressures for system to be 250 lbs.
- Installation to be tested at pressures up to 350 lbs.

On tests which included hammering adjacent to welds with the system under pressure, there were no leaks or sweats.

Airco Applied Engineering Service helped to increase the profits on this contract. Do you have a job, large or small, on which this service can help you?

Airco Oxygen—Airco Acetylene—Airco-Davis-Bournonville Welding and Cutting Apparatus—Supplies—National Carbide

AIR REDUCTION SALES COMPANY

Lincoln Building, 60 E. 42nd Street, New York

Manufacturers Must Lead Credit Reform Program

MAJOR E. PAUL PHILLIPS, *the author of this article, is an authority on credit matters as a result of many years connection with the National Association of Credit Men, in an executive capacity. As former secretary of the Chicago Credit Bureau he understands thoroughly the credit problems peculiar to the plumbing and heating industry.*

IN THE time of depression one should prepare for prosperity and the hour surely is at hand for business executives in the plumbing and heating industry to stop, look and listen—to make a searching analysis of conditions affecting prosperity in their industry. Most of the business leaders in the industry realize that all is far from being well. They know that their troubles are not, by any means, solely attributable to the general economic depression and, therefore, that general prosperity alone will not bring prosperity to the industry.

The problems of the plumbing and heating industry could be classified and discussed separately, but such procedure is useless for the purpose of this discussion because in the end, it will be found that virtually every problem is directly attributable to the lack of a proper credit control.

Cut-throat competition, price cutting, inferior merchandise, lack of co-operation and bad debt losses in the industry are the result of loose credits. The evil starts with the manufacturer and seeps right through the industry to the contractor. The business executives in the industry, in their mad race for larger production and sales, appear to have lost sight of the real aim of business,—namely profit.

It is the writer's contention that the often referred to "over production" is not the real cause of the present economic ills in the plumbing and heating industry or in any other industry, but that the real cause is uncontrolled credit. There can hardly be an over production or over sales problem if a proper credit control is maintained.

The American people want high grade merchandise with a corresponding service and they are willing to pay a price that will give the producers and distributors a reasonable profit. The responsible wholesalers and contractors are striving to sell high quality merchandise with service at a profit. All would be well were it not for the entry into the industry of the irresponsible and unethical element with which the better element is forced to compete.

It would appear that some business executives of the industry have lost all sense of balance concerning the purpose and importance of credit. It seems that they no longer ask, "will a customer pay and is he honest and ethical?", but that the aim is to find out how much he will buy. The result is that the industry is flooded with insolvent and irresponsible concerns, who have no regard for profits or for putting the industry on a higher plane.

Most concerns of that character are not efficient merchandisers and they have virtually no pride of success or achievement. In order to obtain business, they resort to cut-throat methods which destroy profit and sound business methods. Many are not concerned about profits because they are not particularly concerned about paying for the merchandise they purchase. Such concerns, whether they be wholesalers or contractors, in turn, encourage other irresponsible persons to enter business by a gener-

ous allowance of credit. By the same procedure, they help to keep alive the irresponsible concerns already in business. Thus has developed the vicious circle of evils resulting in an annual bad debt loss to the industry of millions of dollars; in a disregard of terms of sale; in price cutting; in low grade merchandise; in an unfavorable attitude of the public toward the industry; and in all the other forms of trade abuses and cut-throat competition, which have made, and will continue to make, unless corrected, it virtually impossible for the responsible wholesaler and contractor to make a fair profit, and also has already created serious difficulties for the manufacturer.

Every business executive probably recognizes that there are very unhealthy conditions in the plumbing and heating industry, which, unless corrected soon, will result in radical and revolutionary changes in the methods of distribution. A careful analysis of the situation surely must convince these executives that inadequate or no credit control is largely responsible for the evils. It is very difficult to understand why these far sighted, intelligent business leaders have so woefully neglected the credit departments of their businesses.

V

No doubt every branch of the industry would deny first responsibility for the bad conditions. Perhaps it would be just as difficult to find the correct answer to this question as to the one, "which came first, the hen or the egg?" Regardless of which branch is the first or chief offender, it would seem that the manufacturer should assume the leadership in a reform program since it is within his power to control the wholesaler field by a curtailment of credit to the irresponsible wholesalers. Without the sincere co-operation of the manufacturers, the wholesalers can make little headway and it also follows that the contractor can accomplish very little without the wholehearted co-operation and support of the wholesalers.

The public will consume just so much plumbing and heating merchandise but it will be a more satisfied public if the merchandise is distributed and installed by highly responsible concerns. Not only will the consumers be more satisfied, but a large portion of that merchandise which is now reaching the consumer through recently developed avenues outside the regular field of the industry will again be supplied by the regular field.

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If the situation is to be corrected and the present distribution methods maintained, the heads of the businesses in the industry must not only appreciate the necessity of a strong credit control policy and procedure, but must have the courage to act and act promptly. Mere talk and theorizing will not produce a cure.

Wholesalers in many communities are already helping materially to remedy the situation through a co-operative credit control service and procedure furnished by trade association and credit group bureaus. These programs have not only saved the wholesalers millions of dollars yearly through decreased bad debt losses, but they have weeded out many irresponsible contractors and been very helpful to the responsible contractors.

The manufacturers have, in many ways, proved their desire and capacity to co-operate with each other and also with the other branches of the industry in constructive programs, but for some reason they have failed generally to adopt and follow strict credit control policies and procedure. The cost of a proper credit service surely can not be the reason for the failure to avail themselves of such a service, since it has been proved so often that the savings from decreased bad debt losses alone in a single year would be sufficient to pay the cost of the service for many years. It is impossible to calculate the increased profits which would result from the elimination of the many other evils. Effective credit control services are already available for manufacturers. They should immediately utilize these services or organize their own and be prepared to meet the era of prosperity, which is dawning, with a properly balanced industrial system that will insure fair profits to business.

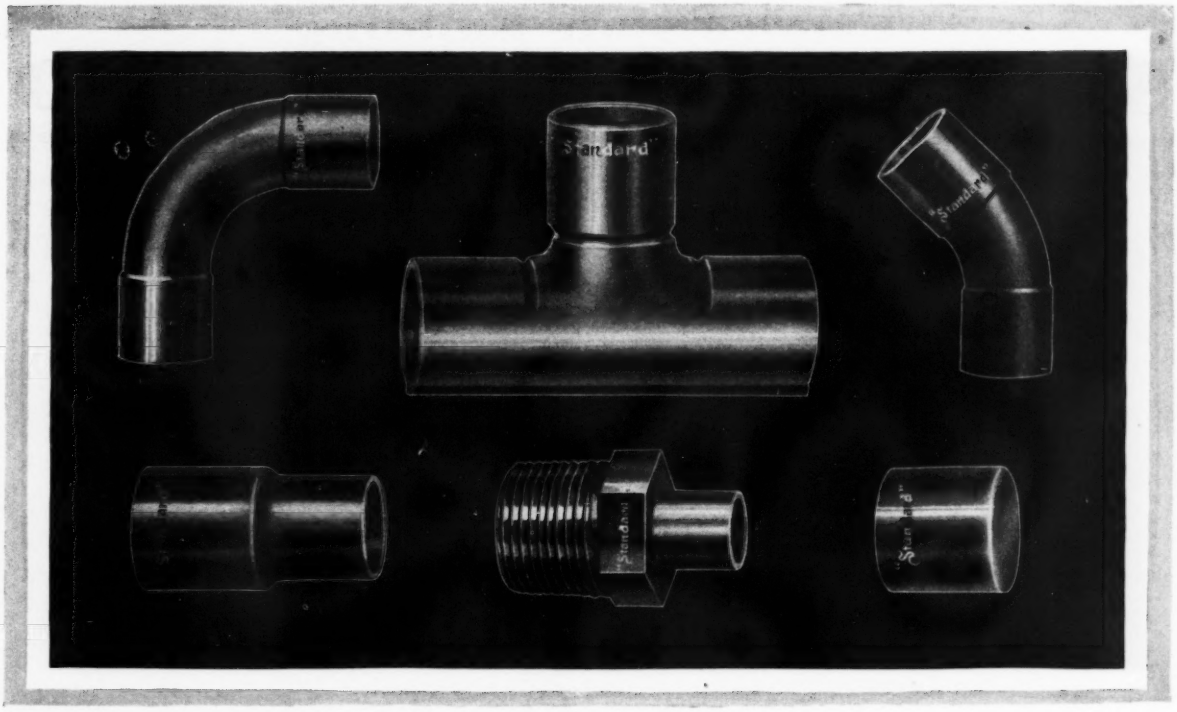
Los Angeles Engineers Probe Into "Refrigeration" Questions

A diversified and interesting program on the subject of refrigeration was presented at the first 1932 meeting of the Los Angeles Chapter, American Society of Heating and Ventilating Engineers, held at the Engineers' club quarters in the Richfield Oil building. The meeting which saw 97 in attendance, was arranged in conjunction with the Los Angeles Chapter, American Society of Refrigerating Engineers, of which W. L. Holladay is president.

J. Laichinger and W. E. Barnum of the York Ice Machinery Corp., spoke on "CO_2 Reciprocating Refrigerating Equipment"; M. M. Lawler and Charles M. Barker of the B. F. Sturtevant Co. on "Methyl Chloride Rotary Machines"; C. E. Kilgore of Gay Engineering Corp. on "Ammonia and Methyl Chloral Reciprocating Rotary Machines"; Louis P. Swenson of Thor Pacific Co. on "Household Refrigeration"; and L. H. Polderman and A. H. Simonds of The Carrier Engineering Corp. of California read a paper on "Centrifugal Refrigeration."

It is planned to probe further into refrigeration at the Society's next meeting on February 15, with talks scheduled by Mr. Sorenson of the Los Angeles Mfg. Co. on "Compressor and Centrifugal Refrigeration"; by J. S. Louis of the Carbondale Machinery Co. on "Compressors and Absorption Refrigeration," who will also refer to air conditioning equipment, and by L. H. Polderman and A. H. Simonds who will present further data on "Centrifugal Refrigeration."

In March, according to E. H. Kendall of English & Lauer, secretary of the Chapter, a talk will be given on the subject of "Air Conditioning," by Ralph E. Phillips and Donald T. Robbins, Los Angeles engineers.



Patent applied for

WATCH FOR THE ANNOUNCEMENT OF

"Standard" FUL-FLO WROUGHT COPPER FITTINGS

IN NEXT ISSUE

A NEW ERA IN COPPER PLUMBING INSTALLATIONS

Standard Sanitary Mfg. Co.
Pittsburgh, Pa.
DIVISION OF AMERICAN RADIATOR & STANDARD SANITARY CORPORATION

Empire State Building

SLOAN EQUIPPED

Architect: Shreve, Lamb & Harmon, New York
Fixtures: Standard Sanitary Mfg. Co., New York

Plumbing Jobber: Dimock & Fink Co., New York
Plumbing Contractor: J. L. Murphy, Inc., New York

SLOAN VALVE COMPANY · CHICAGO

MARKETS

BUSINESS REPORTS FROM LARGE JOBBING CENTERS

REQUIREMENTS of plumbing and heating contractors continued at a low level during the fortnight just passed, and, as a result, the movement of material from wholesalers' stocks was, in the aggregate, light. Manufacturers' salesmen say that buyers for wholesale houses continue to show little interest in building their stocks beyond the minimum working point at which they have been held for some time. Stocks at manufacturing points, while generally light, are sufficient to enable producers to make quick deliveries, according to reports.

Effective January 29, at least one large manufacturer of cast iron boilers and radiation announced a reduction in his published prices which puts prices on these products at the lowest level since 1916. The lower prices reflect improved manufacturing methods put into effect in order to make these products more attractive to the consumer from a price standpoint. A change has also been made in freight rates on boilers and radiators, the rates now being graded fractionally according to the point of shipment.

Effective January 15, one large manufacturer announced a reduction in his published prices to wholesalers on monel metal standardized sinks. On January 18 a manufacturer of plumbers' torchés and furnaces also announced a reduction in his prices.

Construction expectations for the first quarter of 1932 are summed up by L. Seth Schnitman, chief statistician, F. W. Dodge Corp., in the current General Building Contractor. These strikingly point to the fact that although this balance wheel of American industry turns more slowly, it is still turning, not standing still, and at a pace which approximates pre-boom conditions.

A total of $850,000,000 as a maximum construction volume for the quarter is not, Mr. Schnitman shows, of the Gargantuan proportions to which American industrial appetite has been whetted during its orgies of the past decade; yet it does represent a huge expenditure, with large significance to labor and materials.

During the month of December, 1931, 26,743 range boilers were shipped in comparison with 36,930 in November and 31,496 in December, 1930, according to data reported to the Bureau of the Census by 17 manufacturers, the value of whose output constitutes approximately 90 per cent of the total for the industry. Total shipments for the entire year of 1931 were 520,957 units, in comparison with 582,162 units in 1930.

December wholesale prices of six standard plumbing fixtures for a six-room house, ascertained by the Bureau of the Census from reports of twelve representative manufacturers and wholesalers, averaged $93.52 as compared with $94.15 in November, $98.52 in December, 1930, and $100.58 in December, 1929.

The lowest price in 19 years for the finest plumbing in history..

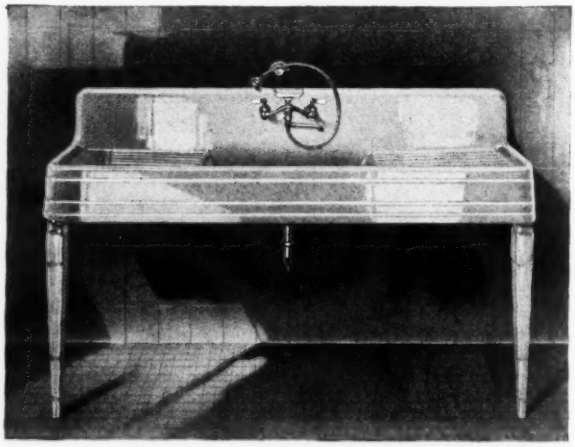
Now you can offer your customers Crane Plumbing at prices whose economy has not been equalled in 19 years.

Throughout the entire Crane line revisions have gone into effect that have brought prices down to 1913 levels.

Bear in mind, these revisions touch price alone. Not in one single instance have they been reflected in lowered quality.

Judge for yourself how this step will help you. Every home, every building owner is faced with curtailed income, with depreciation of investment, and is struggling to find some method of holding up his property values. Modernizing is the one and only practical solution!

With Crane plumbing at these new low prices, you can offer such prospects the best plumbing with the greatest prestige value at a cost so low that they would have to reach back two decades to find its equal.



For no more than a fixture of inferior quality, ordinary appearance, and mediocre service would have cost your customers just a few weeks ago, you can today install this distinctive Crane Corland, *C 19176-SD*

• • •

In the interests of your business take full advantage of this situation. Prepare yourself by going to your Crane Branch . . . by learning just what these new low prices are and into what convenient payments they can be divided under the Crane Budget Plan.

CRANE CO., GENERAL OFFICES: 836 S. MICHIGAN AVE., CHICAGO
NEW YORK: 23 WEST 44TH STREET
Branches and Sales Offices in One Hundred and Ninety Cities

CRANE

Heating and Piping Contractors Start Plans for 43rd Annual Convention

Preparations for the forty-third annual convention of the Heating and Piping Contractors National Association which will be held in Detroit, Mich., May 16, 17 and 18, have begun with the naming of a convention committee by the members of the Detroit local association.

The Detroit association will act as hosts to the members who will come from all sections of the country when the convention convenes May 16. The convention committee named will have charge of all arrangements and plans for the convention.

George Freyn, Detroit heating contractor, has been named chairman of the convention committee. He will have as members of his committee the following assistants, each of whom will head the sub-committee indicated:

Emmet Byrnes, reception committee; Charles Gallarno, publicity committee; Clare Davis, finance committee; Emery Harris, entertainment committee; Mrs. Ray Spitzley, ladies' committee; Edward Glanz, golf tournament committee; Harry Nelson, manufacturers' and jobbers' committee; and Lawrence McConachie, hotel and transportation committee. George S. Clarke, executive secretary of the Heating and Piping Contractors Detroit Association, will work with this general committee as an ex-officio member.

The convention committee has already had several sessions and it is planned to meet two or three times a week to assure the best possible arrangements for those who will attend the convention.

◆

Oklahoma Convention Dates Are Announced

The Oklahoma State Association of Master Plumbers will hold its annual convention at Enid, Okla., on April 18 and 19. Headquarters will be at the Youngblood hotel. N. G. Watt of Tulsa is president of the association, and H. L. Mason, also of Tulsa, is state secretary.

◆

Missouri State Convention Dates Are Announced

The Missouri State Association of Master Plumbers has selected April 18 and 19 as the dates for its annual convention, which this year will be held in Kansas City. H. J. Morrison of Poplar Bluff is president of the state association, and Charles Burgess of St. Louis is secretary.

Massachusetts State Convention To Be Held April 5

The Massachusetts State Association of Master Plumbers has selected April 5 as the date for its forthcoming annual convention, which is to be held in Boston. Convention headquarters will be at the Hotel Statler. J. Preston Perham, of West Roxbury, is chairman of the convention committee. Frank E. Darling, Fall River, is president of the state association.

◆

Pennsylvania Convention Dates Are Announced

The annual convention of the Pennsylvania State Association of Master Plumbers will be held at Wilkes-Barre on May 16, 17 and 18, according to Carl J. Forve, of that city, secretary of the state association. Convention headquarters will be at the Mallow-Sterling hotel.

Among those on the local convention committee are: Walter C. Williams, state president; Carl J. Forve, James O'Rourke, Leo Steadle, John Scrimgeour, William Lewis, James Redington and William T. Evans.

◆

Plumbing Conference to Be Held at M. I. T. February 24

The plumbing conference which is held annually at Massachusetts Institute of Technology, Boston, Mass., this year will be held on Wednesday, February 24. The Massachusetts State Association of Master Plumbers and the Massachusetts Sanitary Club will, as usual, cooperate with the Institute in conducting the conference.

◆

Nearly $800,000 Already Pledged to Portland Building Campaign

The campaign for starting remodeling and new construction work in Portland, Ore., under the sponsorship of the Civic Building Service Bureau, has already resulted in pledges amounting to $797,000 from property owners. Full particulars concerning the organization of the Bureau appeared in our last issue.

A flying squadron has been organized, consisting of representatives of wholesale organizations, and these men will work in the business and industrial section of the city.

In the residential section of the city 36 groups will canvas for pledges, accepting as small an amount as five dollars, thus giving even the modest home owner an opportunity to share in this community enterprise.

West Virginia Changes Date for Convention

The Master Plumbers Association of West Virginia has just announced that its annual convention will be held on February 15 and 16, in Martinsburg, with headquarters at the Shenandoah hotel. It was originally planned to hold the convention on the first and second of this month, and notice of the change in dates was not received until after our issue of January 23 had gone to press.

The officers of the state association are Charles E. Mumford of Fairmont, president; S. O. Johnson of Parkersburg, vice president; and J. Guy Hawkins of Fairmont, secretary-treasurer.

L. H. Caskey is chairman of the convention committee, and H. W. Easter, secretary-treasurer. The convention committees are made up as follows: Registration, E. D. Gardner, J. K. Janney, George W. Appleby and Paul Hammann. Dances, H. C. Hammann, E. E. Heck, L. H. Caskey, J. K. Janney and Charles Yontz. Banquet, J. G. Baldwin, George W. Appleby, H. C. Malone, E. D. Gardner, E. E. Heck and Paul Hammann. Program, George W. Appleby, H. C. Hammann, E. E. Heck, L. H. Caskey and J. G. Baldwin. Entertainment, E. E. Heck, H. C. Malone, J. K. Janney, George W. Appleby and H. A. Hammann.

◆

Emporia Plumbing and Heating Firm Opens Attractive New Quarters

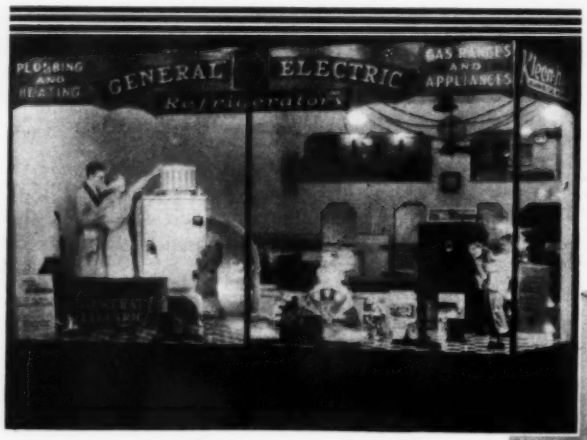
The completely remodeled and extremely attractive quarters of the Emporia Plumbing and Heating Co., at 710 Commercial avenue, Emporia, Kans., were formally opened recently with ceremony befitting the occasion. W. I. Marsh and J. D. Marsh, owners of the company, were busy from early in the morning until late in the evening receiving the many visitors who came to inspect the new place of business. They were assisted by the employes of the company, including A. T. Sughrue, sales manager, as well as by representatives of various manufacturing concerns whose products they distribute.

The Emporia Plumbing and Heating Co. has been in business for ten years and during that period has increased the scope of its activities tremendously. Just recently the firm was appointed exclusive home appliance dealers for the General Electric Co. in Emporia and surrounding territory. All major appliances manufactured by General Electric Co., including refrigerators, ranges, radios, sunlamps, ironers, washers, cleaners, clocks, flat irons and other items will now be sold by the Emporia Plumbing and Heating Co. The company will employ three salesmen.

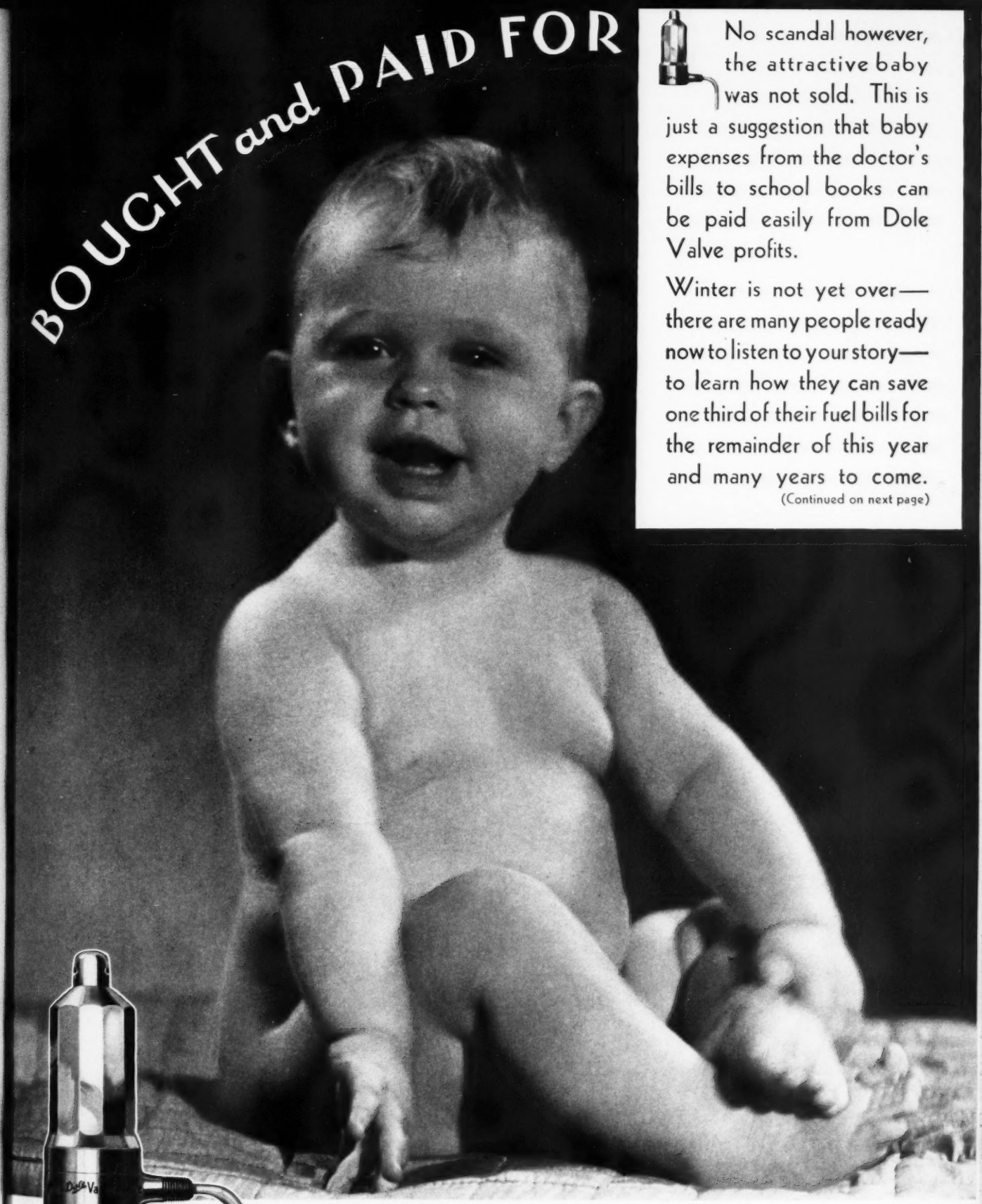
Three model bathrooms, completely fitted, have been built on the ground floor, featuring texture walls and modern fixtures, including a sun lamp. The store has been redecorated, carrying out a color scheme of ivory and green. A balcony has been installed, containing business offices and a radio display room. New fixtures, lighting and heating system, and an inlaid linoleum floor complete the remodeling.

Among the General Electric Co. representatives present for the opening were: W. D. Galpin, H. G. Kelly and C. A. Lindevall, sales promotion department, Bridgeport, Conn.; Ray Morse, merchandise specialist, Kansas City; A. W. Gilmore, appliance sales manager, Kansas City; Harry Rice, territory representative General Electric Supply Co., Kansas City; A. W. Friedenman, construction department, Bridgeport, Conn.; G. W. Wilson, Hot Point division, Kansas City; Major M. A. Glueck, district manager of the refrigeration department, Kansas City; Don Keller, sales manager of the refrigeration department, Kansas City, and B. W. Rasmussen, sales manager of the wholesale department, Kansas City.

Other out-of-town guests at the opening included C. B. Smith, manager of the Topeka Steam Boiler Works; Paul Aronhalt, assistant manager, and E. A. Newton, sales representative of the same company; Dike Prentice, Lawrence; L. E. Rumbaugh, manager of the Birch Glueck Company, Wichita, and Ed Hesser, Standard Sanitary Mfg. Co., Kansas City.



Pictured above is the new display window of the Emporia Plumbing and Heating Co., at Emporia, Kans., and at the right is a general view of the interior of the attractive new quarters of this progressive company



No scandal however, the attractive baby was not sold. This is just a suggestion that baby expenses from the doctor's bills to school books can be paid easily from Dole Valve profits.

Winter is not yet over—there are many people ready now to listen to your story—to learn how they can save one third of their fuel bills for the remainder of this year and many years to come.

(Continued on next page)

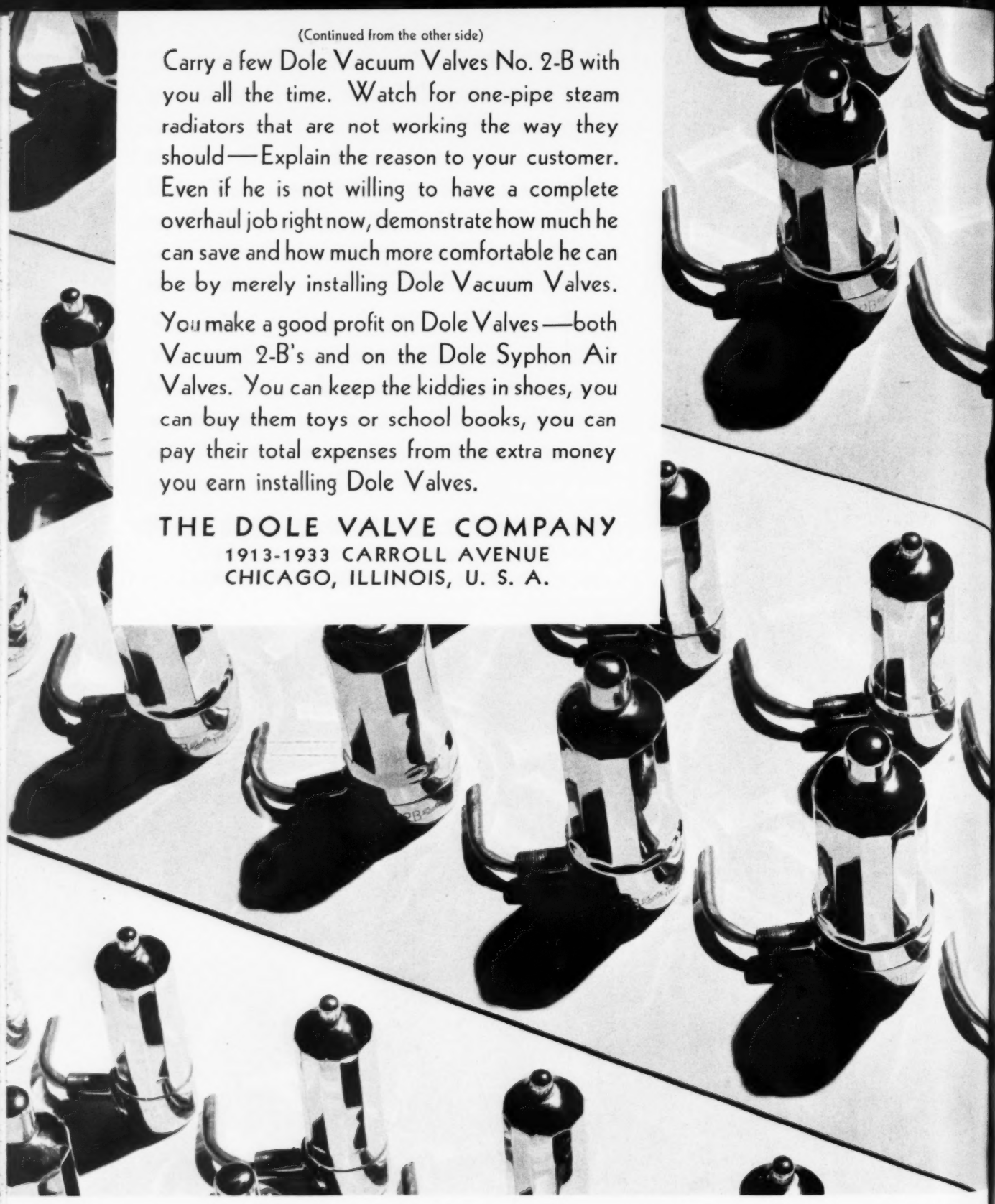
DOLE VALVES

(Continued from the other side)

Carry a few Dole Vacuum Valves No. 2-B with you all the time. Watch for one-pipe steam radiators that are not working the way they should—Explain the reason to your customer. Even if he is not willing to have a complete overhaul job right now, demonstrate how much he can save and how much more comfortable he can be by merely installing Dole Vacuum Valves.

You make a good profit on Dole Valves—both Vacuum 2-B's and on the Dole Syphon Air Valves. You can keep the kiddies in shoes, you can buy them toys or school books, you can pay their total expenses from the extra money you earn installing Dole Valves.

THE DOLE VALVE COMPANY
1913-1933 CARROLL AVENUE
CHICAGO, ILLINOIS, U. S. A.



DOLE VACUUM VALVES 2-B
SYPHON AIR VALVES

Boston Master Plumbers' Association Installs New Officers at Annual Meeting

The Master Plumbers' Association of Boston and Vicinity, Inc., held its annual meeting in Boston, Mass., last month, at which time the newly elected officers were formally installed in office.

The new president of the association is Edward E. Marchant, and the other officers are: H. L. Rose, Jr., vice president; J. Preston Perham, financial secretary; Patrick A. Lang, treasurer; and William J. McAuliffe, clerk. The new board of directors is made up of all the above officers, except for Mr. McAuliffe, and in addition: George F. Crawford, Albert E. Roberts, James G. Gillespie, Jonas A. Laraway, Saul Gould and Angelo Minella.

Edward E. Marchant

The meeting was opened by Albert E. Roberts, retiring president, and the reading of the minutes of the last meeting, by Secretary John Downey, was followed by the annual reports of the various officers and committees.

Mr. Roberts, in his report, described in detail the activities and work of the association during the past year, and expressed his appreciation for the assistance given him by the other officers, the directors, the various committees and the conference board. He stated that despite present business conditions the association is in splendid shape, both financially and from the standpoint of number of members. He described the result of conferences with the local gas company for the purpose of developing a co-operative sales plan. President Roberts also thanked the members of the Women's Auxiliary for their efforts to assist in promoting the welfare of the association.

P. W. Donoghue, president of the National Association of Master Plumbers and a member of the Boston local, was present for the installation. He told of the recent survey of Cincinnati, Ohio, by the Plumbing and Heating Industries Bureau, which was made at the request of the National association, to determine the facts about direct-to-consumer sales. Complete details of this survey have appeared in recent issues of DOMESTIC ENGINEERING. President Donoghue also described the co-operative plan developed with the local gas company in regard to the sale of gas appliances.

In a brief address, President Marchant outlined his plans for the coming year, which, among other things, call for an intensive membership campaign. James S. Cassedy, past National president, was in charge of the installation ceremonies. Retiring President Roberts was presented with an attractive pen and pencil set as a token of appreciation for his work as president.

The following committees were elected to serve during the coming year: Legislative, Andrew F. Curtin, chairman; David Craig, J. S. Cassedy, James Gillespie and Louis H. Jacobs. Auditing, Louis Browning, chairman; Edward C. Kelly and William J. Kelly. Nominating, James A. Cotter, chairman; William J. Hanson and William P. Kane.

Pennsylvania Masters Hold Successful Mid-Winter Meeting

THE Pennsylvania State Association of Master Plumbers held its annual mid-winter meeting at the Hotel Brunswick, Lancaster, Pa., on January 20, with 202 members from all parts of the state in attendance. The program, which was in charge of President Walter Williams of Wilkes-Barre, covered nearly every phase of association activity.

David S. Sanderson of Drexel Hill, chairman, educational committee, National Association of Master Plumbers, outlined the work of that committee and its relationship to state and local work.

R. E. Zuern of Shamokin spoke on the subject of pricing and merchandising of plumbing materials. His talk was illustrated with cost sheets and ledger pages from his own business, which added much to the value of the talk.

Maney J. Feeney, national director and president of the Philadelphia association, told what the National association is doing to help the local association. He explained such activities as the National association committee which is working on a minimum requirement code for the plumbing industry. He explained the interest of the National association in the Construction League of the United States, the objects of which are to stabilize the construction industry. Two of the chief aims of the league are revision of the Sherman Anti-Trust Laws and Prequalification of Bidders on Public Works.

Maney J. Feeney

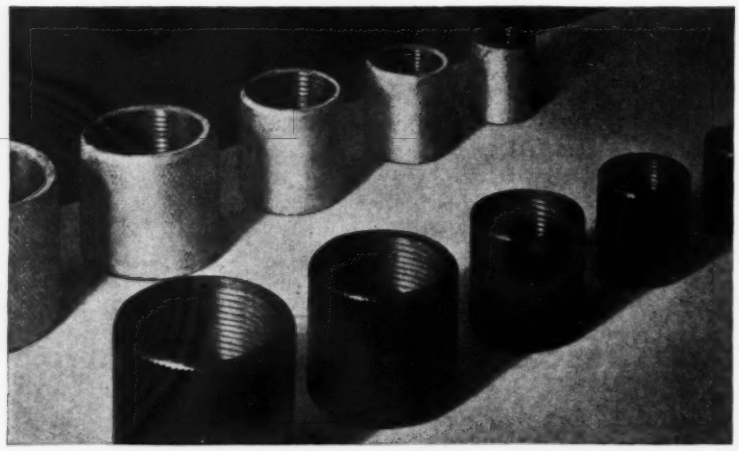
Mr. Feeney also told of the work of the conference committee, under Martin Utz of Rochester, N. Y., seeking the separation of contractor mechanical equipment from the general contract on all public work. He said the committee feels that the prospects of having the bill passed are better now than ever before..

Mr. Feeney asked for 100 per cent co-operation of all members in helping the National association with its merchandising purchase survey. He also asked for the co-operation of every member in the matter of direct-to-consumer sales, as requested in a letter from the office of the National Association of Master Plumbers, under date of December 21, 1931. Mr. Feeney also outlined the reasons for the remission of the National per capita tax on new members.

J. Harvey Borton of the Hajoca Corp., Philadelphia, addressed the gathering, and spoke ably on direct-to-you

J&L STEEL PIPE IS MADE TO MEET CUSTOMER REQUIREMENTS

In the production of its steel pipe, J&L is unhampered by any consideration save the needs of its customers. Ownership-control over all raw materials and processes of manufacture from ore to finished products permits J&L to keep its products and its policies abreast of changing customer requirements. J&L steel pipe is produced with the properties that fit it to meet the needs of today. If tomorrow brings new needs, J&L pipe will be produced to meet them.



SOUND COUPLINGS

A coupling can be no better than the steel from which it is made. To assure that the steel for J&L couplings will conform to the high J&L standards and will have the exact properties desired, it is selected with scientific exactitude. The finishing of the coupling is also of great importance, and so is done with unusual care. Each J&L coupling is sized, and gauged for thread pitch, general contour, etc., before it is approved. The rewards of this extra care are found in the extra service J&L pipe installations give.

J&L PIPE

J&L STEEL

OUTSTANDING FEATURES OF J & L STEEL PIPE

1—Uniform Quality Steel
2—Free from Excess Scale
3—Accurate Mill Threads
4—Free Cutting—Easy to Thread
5—Special Coupling
6—Thoroughly Coated
7—Rigidly Inspected
8—Galvanized Pipe Uniformly Coated—No Clogging with Spelter

JONES & LAUGHLIN STEEL CORPORATION
AMERICAN IRON AND STEEL WORKS
JONES & LAUGHLIN BUILDING, PITTSBURGH, PENNSYLVANIA

J&L JUNIOR BEAMS | J&L STEEL PIPE | J&L LIGHT CHANNELS | J&L NAILS and STAPLES BRIGHT and GALVANIZED | J&L CONCRETE BARS | J&L STRUCTURAL STEEL | J&L STEEL PILING

competition, and Harry L. Stilwell of Philadelphia spoke on how to keep out competition.

E. H. Meglathery of Bethlehem told in no uncertain terms why all master plumbers should belong to the master plumbers' association. James H. Lutz, Jr., Harrisburg, chairman of the state legislative committee told of the co-operation he expected from every member in connection with the proposed state plumbing code. He spoke of the co-operation his committee had received from the state board of health, and emphasized the need for united action by the master plumbers in the state in order that the bill receive the approval of the legislature at its next session.

Mr. Lutz introduced Howard J. Bronson, engineer of the State Housing Commission, who spoke on the advantages of good plumbing in regard to the health of the community. Mr. Bronson described ways that his department can co-operate with the master plumbers' association in connection with their efforts to secure a state wide code.

H. S. Christman, assistant sales manager, Philadelphia Gas Works Co., spoke on the "Utility Company and the Master Plumber." His address covered, particularly, gas appliance merchandising, and will be covered in detail in a later issue.

E. J. Meglathery of Bethlehem, on behalf of the state association presented a check to past state president, E. D. Swoyer, of Allentown, as a token of esteem.

Joseph G. Hildebrand, secretary-manager of the Plumbing and Heating Industries Bureau, explained the "Cincinnati Survey" on direct-to-consumer sales, the details of which have already appeared in DOMESTIC ENGINEERING. Mr. Hildebrand also spoke of the loyalty of the National association to the Bureau and pleaded with the contractors present to see that the wholesalers and manufacturers give the bureau financial support.

George F. Uber of Philadelphia spoke briefly on the forthcoming National convention and urged that as many as possible attend.

The opening of the question box disclosed many questions, which were answered from the floor by Harry Hammersla, Harrisburg; M. J. Feeney; J. H. Lutz, Jr.; P. C. Lobach, Allentown; Martin J. Morgan, Philadelphia; R. H. Pflug-Felder, Philadelphia; H. L. Stilwell; E. C. Rohrer, Ambler; James Arthur, Dickson; David S. Sanderson and George Mueller, Philadelphia.

◆

New Officers Are Installed by Los Angeles Plumbers' Association

Election and installation of officers to guide the destinies of the Merchant Plumbers' Association of Los Angeles, Calif., in 1932 constituted the chief business of the association's first meeting of the year.

The new roster includes E. J. Carroll, president; M. L. Pellicciotti, first vice president; William Nies, second vice president; Louis Mellinkoff, secretary; F. D. Reed, treasurer; Vin M. Dunn, auditor, and Ralph J. Dixon, executive secretary. H. R. Fielden is the retiring president.

Following installation of officers, Mr. Dixon expressed himself as being optimistic for a quickening of business activity in the current year and outlined plans for an aggressive association program to help members secure a greater proportion of available business than they have shared in the past. The main part of the program calls for operation of a central employment bureau by the association to form a contact between journeymen and masters.

◆

Arkansas State Association Sets Convention Date

The Arkansas State Association of Master Plumbers will hold its annual convention in Little Rock on April 11 and 12, according to J. H. Bilheimer, Jr., state secretary.

Convention headquarters will be at the LaFayette hotel. C. R. Jones of Siloam Springs is president of the state association.

◆

Newton, Mass., Masters Hear Address by C. W. Wanger

The Master Plumbers' Association of Newton (Mass.) and Vicinity held a special meeting at the Newton club on January 6 for the purpose of hearing an address by C. W. Wanger, president of Woodward-Wanger Co., Philadelphia, Pa.

More than fifty members were present, who listened with interest to Mr. Wanger's address, dealing with the obligations that the master plumbers owe to the public, to their families and to themselves. He emphasized the importance of friendly relations between competitors, adding that membership in the association would bring this about. The speaker also emphasized the need for further study on the part of members of the industry to determine their costs of doing business.

The committee in charge of the affair consisted of C. D. Kieser, chairman; J. B. Davis, vice president and secretary; and Richard Leahy.

◆

New Orleans M. P. Association Elects New Officers

The New Orleans Association of Master Plumbers, New Orleans, La., at a recent meeting, elected Marcus Korn president of the association for the year 1932. Reports submitted at the meeting showed that splendid progress was made during 1931.

Other officers elected to serve with Mr. Korn were A. H. Kussmann, vice president; A. J. Sciambra, treasurer; and L. C. deLeon, secretary. This is the twelfth time Mr. deLeon has been elected to this office. He is also vice president of the Louisiana-Mississippi Association of Plumbing and Heating Dealers. E. L. Hagadorn was re-elected sergeant-at-arms. Mr. Hagadorn's outstanding work as a committeeman has been a valued adjunct to the association.

The following directors were re-elected: S. Antoine, L. C. deLeon, A. H. Grimaldi, P. M. Kenney, M. Korn, A. H. Kussmann, O. P. McGregor, L. Oppermann, L. J. Petrie and A. J. Sciambra.

At the conclusion of the meeting, the members met at the home of retiring president, O. P. McGregor, where a surprise party was held in his honor. An elaborate gift was presented to Mr. McGregor for his zeal and untiring efforts in behalf of the association and its members during the years 1930 and 1931.

Death of Harry L. Hanson

Harry L. Hanson, plumbing and heating contractor of Butte, Mont., died recently in San Diego, Calif., where he had been sojourning with Mrs. Hanson and their daughter, Helen Marie, since last November. He had been in ill health for nearly two years, and was in his 50th year at the time of his death.

Harry L. Hanson

Mr. Hanson was an active association worker and for three consecutive terms, 1919-22, served as a director of the National Association of Master Plumbers, under National presidents Frank B. Lasette, D. F. Durkin (deceased) and Joseph W. Cannon. He also served for several years as president of the Montana Master Plumbers Association. His first venture in the plumbing business was in Jamestown, N. Y. He remained there only a few years and moved to Butte to found the Harry L. Hanson Co., in partnership with Jack Wyman. A short time later L. M. Parmelee, who became secretary-treasurer of the Harry L. Hanson Co., joined the firm.

He was a leader in fraternal affairs in Butte and the state, and prominent also in community affairs of his city. For many years he was a recognized leader in the Knights of Columbus. He was also active in Butte lodge No. 240, B. P. O. E. He took an active interest in the Butte Chamber of Commerce and in recent years served on some of its most important committees. Mr. Hanson was a charter member of the Butte Kiwanis club, with which organization he did much constructive work for his city.

In addition to his widow, Mrs. Mary J. Hanson, his son, Leslie M. Hanson, and his daughter, Helen Marie Hanson, he is survived by a half-brother, Edward Healy, also of Butte.

◆

Death of Isaac Walters

Isaac Walters, master plumber of Everett, Mass., for half a century a member of the Boston Master Plumbers Association and one of the oldest members of the Massachusetts State Association of Master Plumbers, died recently. Delegates from both associations, from which floral tributes were also sent, attended the funeral on January 22 at Grace Episcopal church in Everett. He had a host of friends in the industry.

◆

Looks for Residential Construction Increase

Home owners in Wisconsin took advantage of the low prices of materials during the last year to enlarge and repair their dwellings, according to records kept by the W. J. Hyland Co., plumbing, heating and ventilating contracting firm of Madison, Wis.

"There was a lull in large building erection," said George Hall of that concern, "but residence construction increased. We look forward to an increase in this type of business in 1932."

Northern California Federation Meeting Date is Set

The fourth conference of the Northern California Federation of Plumbing and Heating Industries will take place March 12 at Sonoma Mission Inn, Boyes Springs, Calif. The first scheduled event will be the golf tournament, followed by the executive session for master plumbers at two o'clock. The banquet will be served at six. After the banquet the ladies will be entertained at cards while representatives from all branches of the industry will be addressed by prominent speakers on subjects of vital importance. Dancing is scheduled from ten o'clock until midnight.

Marino Crinella, of Petaluma, president of the Sonoma County Master Plumbers Association under whose auspices the conference is to be held, is preparing for an attendance of over two hundred.

◆

Will Again Head Massachusetts Examining Board

Professor Edward F. Miller of the Massachusetts Institute of Technology, Boston, Mass., has been reappointed chairman of the Massachusetts State Examiners of Master Plumbers.

◆

Los Angeles Merchant Plumbers Take Steps to Regain Lost Business

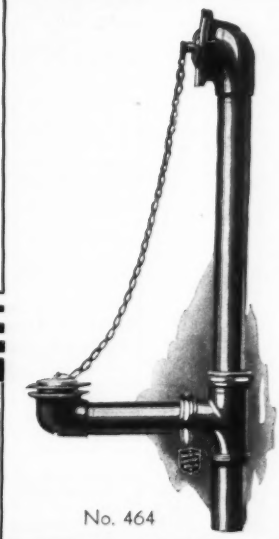
In an effort to determine the percentage of plumbing business its members receive at a reasonable and profitable figure, the Merchant Plumbers' Association of Los Angeles, Calif., has added the functions of an employment bureau to its services to members.

In 1930, according to figures quoted by Ralph J. Dixon, executive secretary of the association, 180,000 fixtures were set in the City of Los Angeles, of which jobs association members handled more than 48 per cent. This percentage of available business is held to be normal in consideration of all factors of competition. In 1931, only 80,000 fixtures were installed, while the percentage of these done by association members dropped considerably below the mark of the year before due to a number of reasons, chief of which was that former employes, dropped because of the volume decline, were soliciting and securing work for themselves. The association's program this year, therefore, calls for efforts toward meeting all kinds of competition and the securing of 48 per cent or more of whatever business is done in 1932.

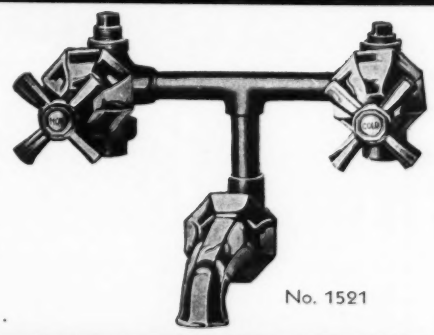
As the first move, more than 250 journeyman plumbers have been registered in the association office since December 29, last. Cataloged according to experience and other qualifications, these journeymen will be at the call of all members, enabling member shops to recruit workers on short notice, thus saving time and considerable overhead expense. Present plans call for the absorption of from 100 to 125 of the men now registered within the next three or four months. Heretofore non-union shops enjoyed the services of no central employment office such as the union shops have in the union local.

Services of the Merchant Plumbers' Association of Los Angeles now include the co-operative buying of workmen's compensation and automobile insurance, the maintenance of a wholesale cost and price guide, the collection of members' outstanding bills through a legal department, and the new employment bureau.

American Quality



No. 464



No. 1521

No. 464 Connected Waste and Overflow. Concealed type. All cast parts rough brass. For built-in tubs.

No. 1521 of the American Art Line of Bathroom Fixtures. Chromium plated. Graceful lines in keeping with modern beauty.

THE No. 464 N. P. Connected Waste and Overflow, an older member of the American Brass goods line, highly reputed for its efficiency of operation, backed by years of experience in the manufacture of the better grade of brass goods.

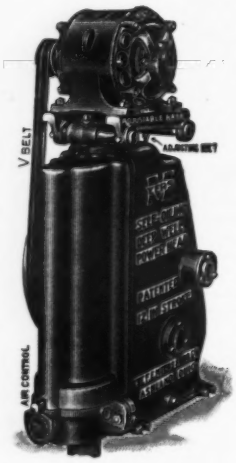
And No. 1521 of the American Art Line of Bathroom Fixtures, recently presented to the industry and offering a new conception of beauty in its eye-pleasing lines, in keeping with the trend of the day.

Both fixtures fit into the bathroom scheme of the modest home or elaborate mansion.

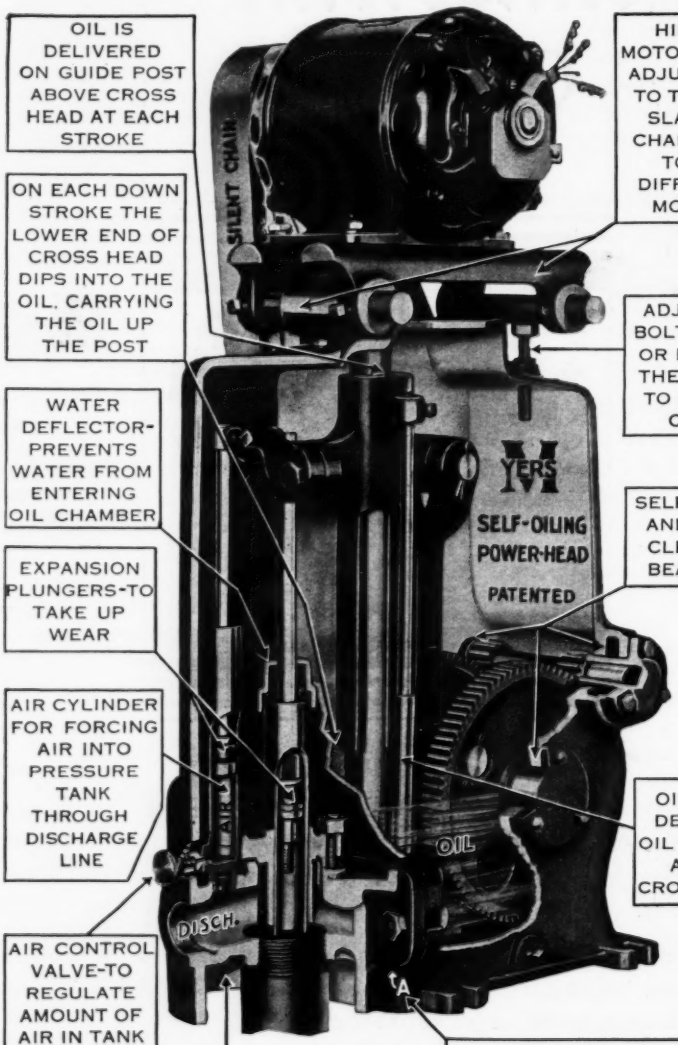
Ask your jobber about American Brass Goods, the line of greatest profit possibilities.

AMERICAN SANITARY MFG. CO. » Abingdon, Illinois

DEPENDABILITY!



Interruption in water service! What a commotion! Everyone starts to complain. Failure of pump performance brings instant pump condemnation. That's why Myers Self-Oiling Power Pumps (see detailed illustration) are built under such rigid standards. Designed by pump experts, mechanically correct, accurately machined, perfectly lubricated, sturdy, fool-proof and extremely economical to maintain, they are trouble free and give lasting satisfaction to those who depend on them for their daily water supply.



OIL IS DELIVERED ON GUIDE POST ABOVE CROSS HEAD AT EACH STROKE

ON EACH DOWN STROKE THE LOWER END OF CROSS HEAD DIPS INTO THE OIL, CARRYING THE OIL UP THE POST

WATER DEFLECTOR-PREVENTS WATER FROM ENTERING OIL CHAMBER

EXPANSION PLUNGERS-TO TAKE UP WEAR

AIR CYLINDER FOR FORCING AIR INTO PRESSURE TANK THROUGH DISCHARGE LINE

AIR CONTROL VALVE-TO REGULATE AMOUNT OF AIR IN TANK

APRON OR SHIELD TO PREVENT SURFACE WATER FROM ENTERING WELL

HINGED MOTOR RAILS, ADJUSTABLE TO TAKE UP SLACK IN CHAIN, AND TO FIT DIFFERENT MOTORS

ADJUSTING BOLT-RAISES OR LOWERS THE MOTOR, TO ADJUST CHAIN

SELF-OILING AND SELF-CLEANING BEARINGS

OIL PUMP-DELIVERS OIL ON POST ABOVE CROSS HEAD

SUPPORTING PROJECTION (A) ON GEAR CASE THAT CARRIES THE ENTIRE WEIGHT OF WELL PIPE

To the clear thinking, far sighted dealer who is looking to the future for increased pump sales and profits, the Myers line offers exceptional opportunities to cash in. Year-through business—no off-seasons—an ever widening market and a well established line to take care of it. Your inquiry will have our prompt attention.

THE F. E. MYERS & BRO. CO. • Ashland, Ohio

Pumps—Water Systems—Hay Tools—Door Hangers

Geo. H. Drake

89 per cent of consumers say price of plumbing is "Reasonable"

IN AN address before the recent annual convention of the Wisconsin Master Plumbers' Association, George H. Drake of Buffalo, N. Y., past president of the National Association of Master Plumbers, referred to a study of the consumer and his relation to the distribution of plumbing material. Mr. Drake's remarks were based on a survey of the distribution of plumbing material in Cincinnati, Ohio, which was made last fall by the Plumbing and Heating Industries Bureau for the National Association of Master Plumbers. Mr. Drake said:

It is my opinion that a substantial bearing upon our industry, possibly even to the point of regulating the method of distribution, is to be found in the attitude of the consumer. He is, when all is said and done, the man who does or does not spend his dollars for plumbing and heating material. With the thought in mind of the importance of the consumer, our organization some months ago made a brief Consumers' Study in a middle western city. Three hundred twenty-four calls were made upon home-owners. These were made in five various sections of the city which might represent five income levels. Two hundred seventy-six of these calls were made upon the housewife and 48 on the husband.

It was found that the average size of the family was four persons. In these 324 homes there were found to be 379 bathrooms. Seventy-six of the homes had an extra lavatory. Two hundred ninety-seven of them had a modern gas water heater and 276 of the kitchen sinks were found to be of a new style type.

Inquiry was also made as to the ownership of some of the items that are being extensively merchandised today. For instance, 265 of the families had a radio; 148 had an electric washing machine and 162 had an automobile.

Inquiry was made concerning the general satisfaction that they were enjoying from their present plumbing and heating equipment. Three hundred four—rather a large figure—reported that it was entirely O. K. Seven of them reported that it was not; and ten refused to answer.

Plumbing Prices Are "Reasonable," Say 89 Per Cent of the Entire Group Surveyed

A very careful check-up was made concerning their reaction on plumbing and heating prices. They were first asked how they felt concerning the prices of repairs. Fifty-six per cent of them thought they were reasonable, while 44 per cent of them thought they were high. They were next questioned concerning their reaction on the price of plumbing fixtures and, strange as it may seem, 89 per cent reported that they thought they were reasonable, while 11 per cent reported they thought they were high.

There was also an endeavor made to get their reaction concerning their opinion of plumbers. Sixty-six per cent reported having a favorable opinion; 3 per cent an unfavorable opinion, and 31 per cent refused to answer.

There was also a careful check-up made as to whether any of these families had purchased plumbing or heating material from direct-to-you houses, and it was found that 27 of the 324 families had bought from such sources. All families were also questioned whether they had direct-to-you disposition; that is, if they would buy plumbing and heating material from a direct-to-you house in the event that they had requirements in our line. Sixty-six of the 324 reported that they would buy from direct-to-you.

All families were also questioned whether they had a regular plumber, and 76 per cent reported that they did, while 24 per cent reported that they did not.

A very careful analysis was made concerning the age

of plumbing equipment in the homes. It was found that 43 per cent of the homes had plumbing less than ten years old; 46 per cent from 11 to 20 years old; 7 per cent, 21 to 30 years old, and 3 per cent over 30 years.

Special attention was naturally given to the 27 families who had bought from direct-to-you companies. In these 27 homes there were 32 bathrooms. This shows a trifle higher average than the complete group. All the homes had a modern gas water heater, but only 77 per cent had modern sinks, as compared to 85 per cent for the entire area surveyed. The percentage of radio, washing machine and automobile ownership was practically the same in these 27 homes as the entire group.

Tabulation of price reaction indicated that in these 27 homes 39 per cent thought repairs were reasonable, while 61 per cent thought they were high. Seventy-eight per cent thought that plumbing fixtures were reasonable, while 22 per cent thought they were high. Their opinion of plumbers was slightly lower than the opinion of the entire group. It was interesting to note that 23 reported that, if they had any plumbing material to buy again in the future, they would continue to purchase from direct-to-you houses. The percentages for the number of people who had a regular plumber were practically the same as for the entire group.

Only 82 Per Cent of Direct-to-You Customers Say Plumbing Prices Are "Reasonable"

It is also interesting to note the figures in connection with the 66 of the 324 families who stated that they were direct-to-you disposed; that is, who would buy from direct-to-you houses in the future, if occasion demanded plumbing and heating purchases. The age of the sanitary equipment in these homes is practically the same as for the entire group. Fifty-two of them have a radio; 43 a washing machine, and 33 an automobile.

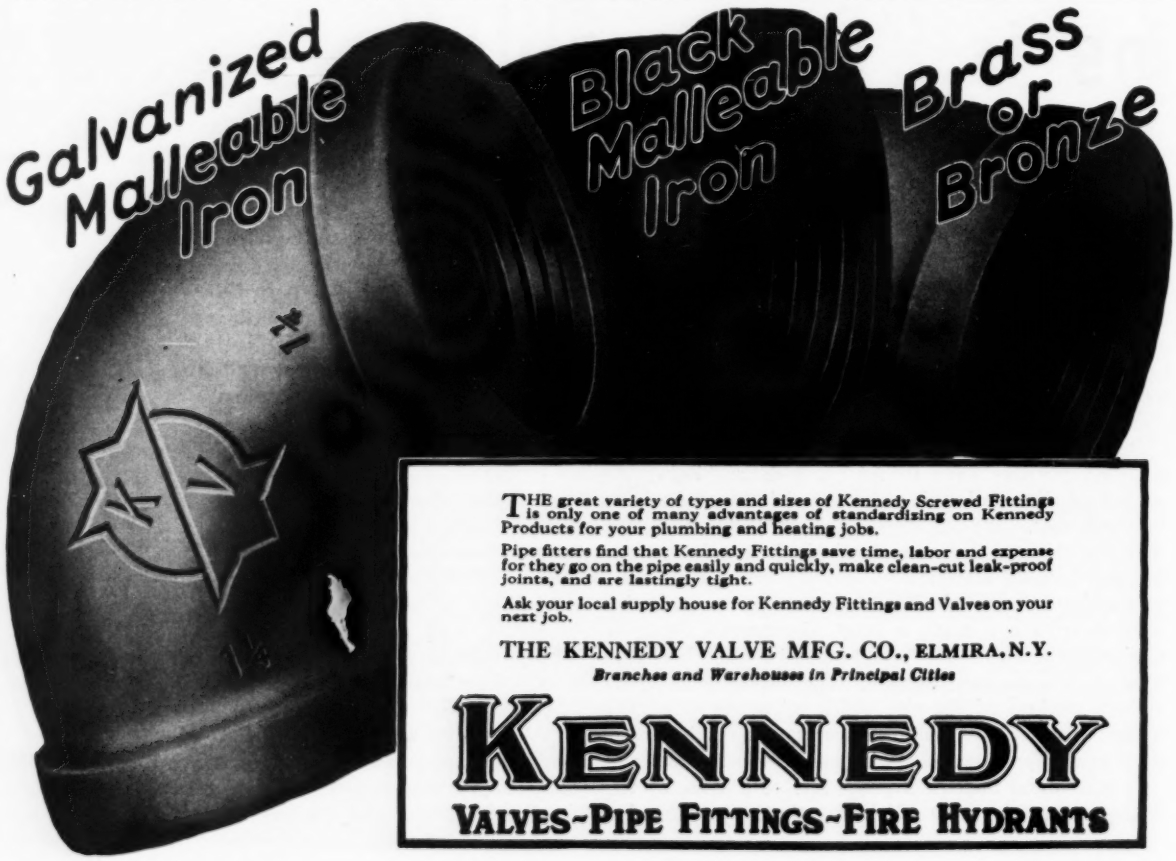
Of the 66, 92 per cent claimed satisfaction with their present equipment. Tabulation of repairs discloses that 45 per cent thought they were reasonable, while 55 per cent thought they were high. Eighty-two per cent believed that fixture prices were reasonable, while 18 per cent thought they were high. Questioned concerning their opinion of the plumbers, 50 per cent held a good opinion; 8 per cent an unfavorable one, and 42 per cent declined to give an answer. Twenty-two of these 66 families had previously purchased from direct-to-you houses. It is interesting to note that only 52 per cent of these 66 families have a regular plumber, as compared with 76 per cent for the entire 324 homes.

What the Survey Proves

These figures, of course, require rather an intensive study to grasp their full significance. However, I do believe, in brief, that they disclose quite definitely that a substantial number of the consuming public are direct-to-you minded and, if occasion requires, would purchase their plumbing and heating from direct-to-you houses.

In the particular city in which this investigation was carried on, it happens that there are a number of direct-to-you houses and that they make a practice of doing quite a bit of newspaper advertising. This particularly would substantially account for the fact that so many people lean in this direction.

One of the lessons to be learned from this investiga-


Galvanized Malleable Iron
Black Malleable Iron
Brass or Bronze
THE great variety of types and sizes of Kennedy Screwed Fittings is only one of many advantages of standardizing on Kennedy Products for your plumbing and heating jobs.
Pipe fitters find that Kennedy Fittings save time, labor and expense for they go on the pipe easily and quickly, make clean-cut leak-proof joints, and are lastingly tight.
Ask your local supply house for Kennedy Fittings and Valves on your next job.
THE KENNEDY VALVE MFG. CO., ELMIRA, N.Y.
Branches and Warehouses in Principal Cities
KENNEDY
VALVES-PIPE FITTINGS-FIRE HYDRANTS

QUALITY

BUILDS PERMANENCE
which cannot be destroyed . . .

Quality merchandise plus quality craftmanship establishes a reputation of worth.

In selecting Duro products you are getting proven merchandise that will establish a foundation of permanent business for you in the pump and softener field.

Duro builds a complete line of shallow and deep well pumps, domestic and commercial vitreous porcelain water softeners.

Duro products are backed by fifteen years of experience in the building of equipment for handling water.

Write for Details on Our Dealers Merchandising Campaign for 1932

THE DURO COMPANY
DAYTON, OHIO

Profitable to sell . . . because it's profitable to OWN!
No other water heater on the market is made of finer materials. . . . No other heater offers more features of interest to the buyer, or more profit making possibilities for the plumber. Why don't you investigate? Write for the details of our attractive dealer proposition. . . . Today.
LOW First Cost
LOW Operating Cost
BIG PLUMBERS' PROFIT
CAPACITIES 15 to 1000 gallons
THE OHIO HEATER CO.
Columbus, Ohio, U. S. A.
Manufacturers of the
OHIO
Automatic
WATER HEATER
We sell through the plumbing trade exclusively

tion, we believe, is that our part of the industry, who believe in the manufacturer - wholesaler - contractor method of distribution, must do some newspaper advertising to attract the attention of the consuming public.

Another lesson to be learned from this investigation, we think, is the fact that there is a splendid modernization market open for the contractors, and if a reasonable investment is made in promotional work, with the present open-mindedness of the consuming public, some very nice and profitable plumbing and heating sales can be made.

◆

Death of Royal Clinton

Royal Clinton, plumbing inspector of East Chicago, Ind., and a prominent citizen of that city, died recently at his home in East Chicago after an illness lasting only a week. He was in his 47th year at the time of his death, and had been a resident of East Chicago since he was three years of age.

He was the first and only plumbing inspector which East Chicago has had since the inception of the sanitary code in the state and city five years ago. He was the author of the state code on sanitation and the city ordinance, and his interest arose from his belief that the poor of the city should be protected by having means of cleanliness and sanitation. He was a member of the East Chicago lodge of Elks, and a former officer of the Lions club and other societies. Surviving are his widow, a daughter and three brothers. Burial was at Oak Hill Cemetery.

◆

Death of Francis S. Walker

Francis S. Walker, of St. John, N. B., plumbing and heating contractor, died recently at his home in St. John, in his 71st year. He had been in ill health for about a year, but had been inactive from his business for only a few months. He was a native of St. John.

Mr. Walker had been in the plumbing and heating business for more than 50 years. For 40 years, he had been in business for himself as a contractor, and had executed some of the largest contracts in the maritime provinces. Surviving are two brothers, William and John W., and two nephews, all of St. John.

◆

Boston Building Congress and Architects Meet

Herbert Snow, treasurer of Buerkel & Co., Boston, Mass., and a director of the Heating and Piping Contractors National Association, took a prominent part in a joint meeting of the Boston Building Congress and the Boston Association of Architects, held on Tuesday evening, January 5.

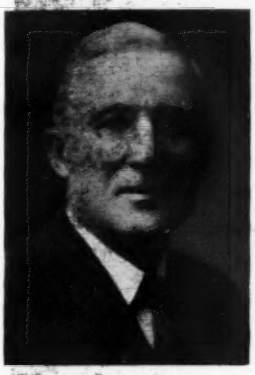
Mr. Snow represented the Building Congress in the discussion on shopping of bids. Other subjects discussed at the meeting included architects' supervision and prequalification of bidders.

◆

Wilmington, Del., Association Elects Officers

The Master Plumbers Association of Wilmington, Dela., has elected the following officers to head the association during the ensuing year: Albert E. Hayman, president; William F. Dorsey, vice president; Harry I. Bell, secretary; and James Wharry, treasurer.

P. W. Donoghue Is Elected President of Plumbing and Heating Industries Bureau



P. W. Donoghue

THE election of P. W. Donoghue of Boston, Mass., as president, the appointment of a committee to study the constituency of the board of directors, and the discussion of plans for the plumbing and heating industry to assume the leadership in a study of small home financing methods were the outstanding features of the annual meeting of the board of directors of the Plumbing and Heating Industries Bureau at the Palmer House, Chicago, on January 15.

The board was unanimously of the opinion that all of the present services of the Bureau should be continued during 1932. Joseph G. Hildebrand, secretary-manager, reported that some companies had increased their 1932 subscriptions over their 1931 contributions and that a number of manufacturers and wholesalers who had not previously been members of the Bureau had made pledges for 1932.

Reports were received of concentrated, statewide membership campaigns in various states following the suggestion made by President Donoghue to members of the National Association of Master Plumbers.

President Donoghue, in whose own home city of Boston the wholesalers have set the pace by nearly 100 per cent membership in the Bureau, was outspoken in his opinion that every wholesaler in the United States should join the Bureau for 1932.

"As president of the Bureau and as president of the National Association of Master Plumbers, I shall do my utmost to get the wholesalers of plumbing and heating equipment in the United States tied up closely with the Plumbing and Heating Industries Bureau," President Donoghue said following his election.

"It is necessary, of course, for the contracting branches of the plumbing and radiator heating industry to take a leading part in the work of the Bureau. We are doing this and shall continue to do so.

"However, we must have more general—in fact, unanimous—support from the wholesalers, and we have set the machinery in motion to get this support.

"I know of nothing the Bureau is doing that is not of benefit to the industry.

"There is not one of its services that is superfluous, or that could be curtailed without serious loss to the plumbing and heating industry. I am also of the opinion that the Bureau is in a stronger position today than ever before. It is operating with a limited organization that is putting in hard work and long hours. The Bureau is efficiently organized and well-managed. Supporters of the Bureau are getting their full value for every dollar contributed."

The membership committee of the Bureau of which Jere Sheehan, Jr., of St. Louis, former president of the National Association of Master Plumbers, is chairman, presented a report outlining the progress already made and the plans for further extension of the membership work.

"While we are doing everything we can by mail," said Mr. Sheehan, "we expect to get the 1932 subscriptions for the Bureau largely by personal interviews. However, manufacturers and wholesalers can assist us by sending in their subscriptions now—immediately. These pledges should be on the basis of the 1931 pledges."

The meeting was characterized by a spirit of optimism regarding the future of the industry. It was the unanimous opinion of the board that the Bureau, as the common meeting ground of all three groups of the industry, should assume the leadership in co-ordinating sales promotion activities in the industry.

George H. Drake, as retiring president, was presented with a handsomel hand-lettered placque, in testimonial of the appreciation of the board members for his two years of efficient and loyal work in behalf of the Bureau.

Other Officers Are Elected

Harry M. Hart, of Chicago, a former president of the Heating and Piping Contractors National Association, was re-elected vice president of the Bureau. John Kohler was re-elected treasurer, and Mr. Hildebrand, secretary-manager.

The following men were chosen as members of the Bureau's Executive Committee for 1932: Harry M. Hart, chairman; W. K. Glen, advertising manager of Crane Co.; George H. Drake, past president of the National Association of Master Plumbers; William Scudder, vice president of the American Radiator Co.; Walter Klie, past president of the Heating and Piping Contractors National Association; William J. Spillane, sales manager of Jas. B. Clow & Sons and president of the Central Supply Association; P. W. Donoghue, president of the National Association of Master Plumbers; Russell G. Creviston, sales promotion manager of Crane Co.; C. R. Crane II. of Crane Co.; H. M. Reed, president of the Standard Sanitary Mfg. Co.; C. W. Wanger, president of the Woodward-Wanger Co.; John Kohler, Kohler Co.; and Joseph Hildebrand.

The following men were named members of a special committee to study the constituency of the Bureau's board of directors: Mr. Creviston, John J. Hall, vice president of the Standard Sanitary Mfg. Co.; Edward B. Kleine of Cincinnati, vice president of the National Association of Master Plumbers, Mr. Spillane, and Mr. Hart.

There's always a market for quality fixtures and remember . . . you can't make money on things that you sell cheap . . . the profit isn't there

K-2601-M—SPEAKMAN Built-in Mixometer Shower. Size ½ inch. Mixometer with metal wall plate and metal handle. Bent arm with heavy metal wall flange and Anystream Self-Cleaning Head K-3395.

K-3395 —SPEAKMAN Anystream Self Cleaning Shower Head. (Pat. Jan. 2, 1923 and Nov. 3, 1931.)

K-4039-M—SPEAKMAN Mixometer Shower and Tub Combination. ½ inch size. All metal handles and escutcheons. Has Speakman Anystream Self-Cleaning Shower Head and Act-Easy Pop-up waste. Valves connected by brass pipe and tested.

IT'S just a matter of simple arithmetic. If you sell a plumbing fixture for $20.00 and make 25% you make $5.00, but if you install a cheaper fixture for say $10.00, you make only $2.50.

In addition to this loss of profit you take a chance on the operation of the cheap fixture—you stand a chance of losing money on back calls to make repairs, and at the same time of losing your customer's good-will, because the fixture is not satisfactory.

So sell quality fixtures—get a good price and make a real profit—you can do this if you explain to your customers the chance they take on cheap fixtures. Speakman has always made quality showers and fixtures—the kind that pay you a good profit and give your customers complete satisfaction.

Literature designed to help you sell quality fixtures that make good profits is available. Your name and address will be imprinted.

SPEAKMAN COMPANY
Wilmington, Delaware

SPEAKMAN SHOWERS & FIXTURES

Binghamton, N. Y., Association Elects New Officers

The Binghamton Master Plumbers Association has elected the following officers for the ensuing year: Thomas J. Cronin, president; Wallace Brown, vice president; Alex Auchinachie, secretary; and Charles Hakes, treasurer. Mr. Brown and Mr. Hakes have been appointed delegates to the New York state convention.

Room Cooling Is Studied

(Continued from Page 44)

Conclusions

Sunshine through the window glass is apparently the most important factor to contend with in the cooling of a room. At times it may account for as much as 75 per cent of the total cooling necessary. Because of the importance of the sunshine, cooling systems should be zoned so that the side of the building on which the sun is shining can be controlled separately from the other sides of the building. Consideration should also be given to shadows from nearby buildings which may cover part of the sunny side of a building. If buildings were provided with awnings so that the window glass were shielded from sunshine, the amount of cooling required would be reduced and there would also be less difference in the cooling requirements of different sides of the building.

In modern office buildings in the latitude of Detroit the amount of heat entering through the walls in summer is of little importance compared with that coming through the windows. It appears that the use of double windows would reduce the amount entering by direct radiation from the sun as well as that by conduction.

A study of the cooling for the entire building indicates that the total amount of cooling for any day (Mondays and days following holidays excluded) is in general proportional to the difference between the average temperature for the day and 55 F. It is affected somewhat, however, by the outdoor conditions prevailing the previous day.

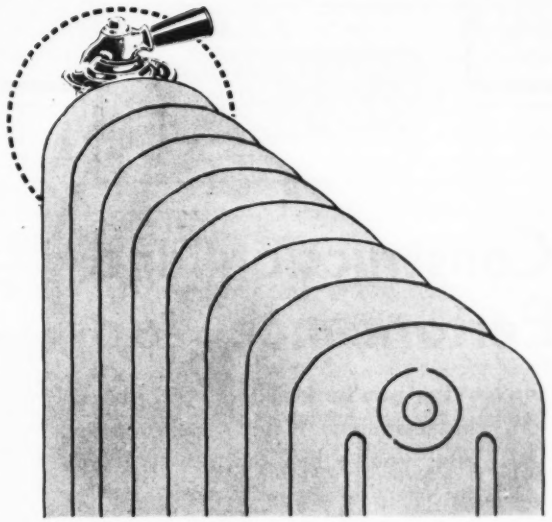
In the latitude of Detroit appropriate design figures for the heat entering the walls and windows of an office building are as follows:

Wall transmission	3 Btu. per hour per sq. ft. of wall
Glass transmission	17 Btu. per hour per sq. ft. of glass
Sunshine (east and west sides)	160 Btu. per hour per sq. ft. of glass
Sunshine (south side)	140 Btu. per hour per sq. ft. of glass

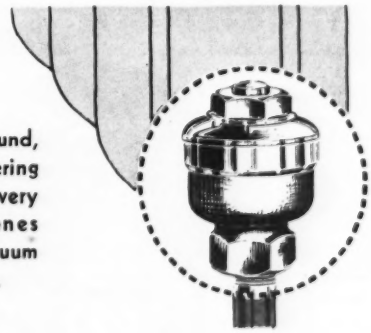
The maximum rate at which solar radiation enters south windows is less than for east and west windows because of the angle at which the sunshine passes through the glass. The glass area referred to is the area actually exposed to the sunshine. If there are overhanging ledges above the windows, these must be taken into account.

Acknowledgments

Acknowledgment is due F. C. Houghten for his helpful suggestions and comments, to the Union Guardian Trust Company which cooperated in making the tests, and to C. B. Sprenger and C. W. Signor of The Detroit Edison Company who conducted the tests and contributed many suggestions.



Make this test. Inspect and compare, part for part with any other make, a Barnes & Jones return trap or valve. See for yourself, why B & J vapor and vacuum systems of heating give years of satisfactory service.



30 years of sound, practical engineering are back of every Barnes and Jones Vapor and Vacuum Heating System.

BARNES & JONES INC.

You should have this 32 page catalog in your files.

127 Brookside Avenue, Jamaica Plain, Boston, Mass.
Send, without obligation, your book describing Barnes & Jones Vapor and Vacuum Systems of Heating.
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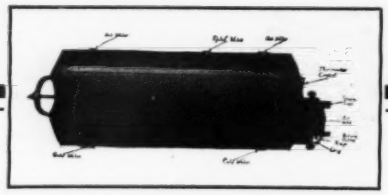


Construction and Performance, *top*

After you've installed a Morrison Instantaneous Water Heater and after you've had the opportunity to examine its construction features, you'll agree that both construction and performance are *top*. Write today for full information on the Morrison. It will solve your hot water problems for all time.

Morrison Bros.

24th and Elm Sts. Dubuque, Iowa

VALVES & FITTINGS

If in 1932 you want to be sure of workmanship, materials and safe margins over pressure ratings—specify Jarecki Valves and Fittings.

Then you will have the benefit of Jarecki's long experience in designing, manufacturing and testing—and that extra measure of value which for 80 years has been characteristic of Jarecki products.

Jarecki
MANUFACTURING COMPANY
ERIE, PA., U. S. A.

Henry P. Reger Heads Illinois Master Plumbers

HENRY P. REGER, Chicago, is the new president of the Illinois Master Plumbers Association. He succeeds Fred R. Bailey of Rockford, whose administration closed with the 40th annual convention held in Springfield, January 19-21. Subjects covered in the program and those brought up informally attracted more attention than in more normal periods when the attendance is larger. Thus each one in attendance was benefited.

Henry P. Reger

M. J. Kickham of East St. Louis is first vice president. Harry C. Abele, Peoria, is second vice president. David E. Greig of Springfield is treasurer. Mr. Bailey was selected as delegate to the national convention with Mr. Reger as the alternate. Clarence A. Bolton, Chicago Heights, as general secretary of the association, was responsible for the program and for the successful handling of the convention.

The resolutions adopted relate both to state and national issues. Among the latter is one supporting the recommendation of the National Association "regarding the display, price tagging and merchandising of fixtures, appliances and equipment." Another commends the national board for having made the survey of merchandising conditions in Cincinnati. A reduction in wages is favored where required to bring labor costs into relationship with economic conditions. Members are urged to continue to support the distribution of materials through the established trade route of manufacturer to wholesaler to master plumber. The work of the Plumbing and Heating Industries Bureau is recognized and members urged to support it.

The Illinois Credit Bureau received thanks for its contribution to the education fund. The state department of registration and education was commended for its energy in enforcing the provisions of the Illinois license law with particular reference to the appointment and organization of the revocation board. The association's fiscal year was changed to beginning January 1, bringing it into harmony with the National association.

Rupert J. Weber

W. J. Spillane, president of the Central Supply Association, finds

Fred R. Bailey

associations essential to the advancement of the industry. The development during the past year of co-operation between wholesalers and master plumbers is regarded by Mr. Spillane as proof of the fact that the industry will be one of the first to regain a profit making basis. His address will be abstracted more fully in a later issue. It carries a strong plea for more effective merchandising, including the use of price tags.

Harry C. Yelton of the Inland Supply Company, Chicago, presented the association with a check for $500 raised from among members of the Illinois Credit Bureau to carry forward the association's educational work.

Rupert J. Weber of Chicago, a member of the board of directors of the National association, told of the work being carried on by that body under the leadership of P. W. Donoghue. Joseph G. Hildebrand, secretary-manager of the Plumbing and Heating Industries Bureau, talked on the "Bureau's Position in the Plumbing Industry." Selections from his talks will be printed later.

R. V. Sawhill, editorial director of DOMESTIC ENGINEERING, talked on "A New Deal for the Plumbing and Heating Dealer." He showed how the closer analysis being given now by executives of manufacturing companies to the problem of building up business has brought a greater appreciation of the importance and value of the established plumbing and heating dealer as the best sales outlet. Unsatisfactory experience with high pressure selling methods and firms is causing these manufacturers to turn toward the well financed and energetic plumbing and heating dealer.

C. A. Bolton

"Co-operation with the Utilities on Gas Appliance Merchandising" was covered by E. F. Kelley, assistant to the vice president of the Central Illinois Public Service Co. He told of the difference in the plans as worked out in different localities brought about by the desire of the utilities to increase sales through dealers. Space and water heating are the two channels through which an increase in gas appliance sales can be expected.

R. G. Bookout, editor of the Plumbing and Heating Contractors' Trade Journal, told of "Danger Signs" he sees, especially the risk to the plumbing and heating dealer who does not meet the growing pressure for selling more products by taking up merchandising more actively, including the use of show rooms.

Interesting addresses were made by Charles W. Hadley, formerly chairman of the Illinois Commerce Commission, in which he explained mechanics' liens; by John N. Van der Vries, manager of the northern central division, Chamber of Commerce of the United States, on the "Trade Association's Opportunity in the Present Business Situation," and by J. E. Edwards, chief inspector, on "The State Department of Registration and Education and Its Functions." Mr. Van der Vries aroused enthusiasm by his clear picture of today's business conditions showing the unwarranted exaggeration of depressing factors and the failure to appreciate that the volume of business being done is equal to that of 1926.

Business conditions today make association work more necessary than ever, according to President Bailey in his annual report. He felt that direct-to-you competition is not always the worst factor as some licensed master plumbers make competition worse by employing inefficient methods and forgetting costs when making bids. He reported that the zone meetings held during the past year had been highly successful both in attracting attendance and provoking informative discussion.

Wm. F. Hildemann

The informal discussions covered a wide variety of subjects, including labor costs, utility co-operation, the best method of using a shop on wheels, proper method of billing, manufacturers' and wholesalers' policies, especially as they handicap the dealer who is maintaining a show room and carrying an added sales expense, methods of securing a new state code, meeting direct-to-you competition by advertising, accommodating one's business today to a smaller volume, credits, success in getting county groups to promote a plan for running water on every farm, advantages of one state wide examining board in place of 46 now used, opportunities for modernization including the 5,000 schools in Illinois without inside toilet facilities. Some of these discussions were led by Henry Strenger, William F. Hildeman, Michael Mele, Charles Gawne, Daniel O'Connor, James C. Naughton, Rupert J. Weber, Henry Reger and William Crowley. Leading contractors from Wisconsin were at the Illinois meeting and by request took part in the discussions. These included the past president, Lewis R. Friend, and Fred C. Kuetemeyer and Jacob Schuh.

The Springfield association successfully met the obligation of host through its members, Merle J. Andrews, David E. Greig, James F. Murphy, J. T. Power, Rhodes Plumbing Co. and Straub Plumbing & Heating Company. Prominent state officials addressed the convention, including Gov. Louis L. Emmerson and Lieut. Gov. Fred Sterling.

David E. Greig

The dollar you **spend** *now is worth* $1.50

The dollar you **save** *now is worth* 75c

A LOT of people feel just now like the old Negro who came to the crossroads and saw one sign pointing to heaven and another sign pointing to hell. He shook his head and said to himself, "Ef Ah goes to Hebben, gotta fly all the while; ef Ah goes to Hell gotta jump all the while. Ah giss Ah'll jes' set here an' rest mahse'f."

BUT resting is rusting. This is true of dollars.

IF those of us who *have* money just *leave* it to *rest*—the wheels of industry keep on rusting. Wheat and cotton and corn keep on piling up in warehouses. Our neighbors keep on hunting for jobs that don't exist.

NOW, it's wrong to spend our dollars foolishly, just for the sake of spending. But a lot of us are *saving* dollars foolishly—just for the sake of saving—without realizing that the dollar we save today has a decreased *earning* power compared with the dollar we saved in 1929. But the dollar we *spend* today is worth $1.50 in value received.

MOST prices are way down—further down than they were even in 1921. Eggs and butter and flour and clothing and furniture are way down—and that means values are way *up*. This is the greatest *buying* time we'll see again for many years.

PRETTY soon, these prices are going to start up—some prices have already started up. When they do, we'll have to pay *more* for the things we need *right now*. We shall have lost the chance to get that new suit or dress or chair or bed or radio or automobile—at a bargain!

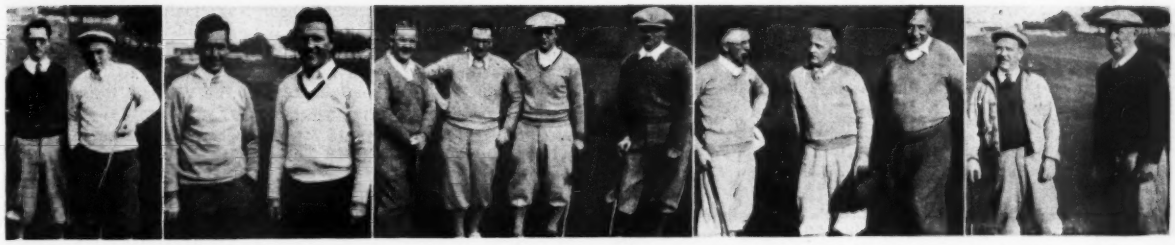
BESIDES, if we buy these things *now*, we'll put somebody to work who needs a job even worse than he needs charity. If we put him to work, he can buy the things *we* make or sell, and that will help *us*.

HARD times? Not if we harness our dollars and hitch them to the wagon, instead of leaving them in the stable.

THE NATIONAL PUBLISHERS' ASSOCIATION

"To use available income to purchase goods normally needed and in the replacement of which labor is employed, is a condition precedent to any hopeful program to constructively increase employment."

From the Recommendations of the Committee on Unemployment Plans and Suggestions, of the President's Organization on Unemployment Relief.



Left to right: H. P. Wilson, Henry Olson, A. Carrigan, C. F. Honeywell, S. J. Piercy, C. B. Purcell, William F. Lane, R. L. Cramer, W. H. Burt, J. F. Beuttler, Martin Doerr, F. X. Farry and H. M. Callahan. Photos taken at the December golf tournament and Hi Jinx of the Plumbing and Heating Club of San Francisco, Calif.

Bureau Publicity Work Helps Industry's Sales Efforts

THE policy of writing and sending to the newspapers interesting and educational information about plumbing and radiator heating which was begun by the Plumbing and Heating Industries Bureau in January, 1930, was continued throughout 1930 and 1931 with considerable success.

The Bureau has just issued a report showing that newspapers in all parts of the country with a total circulation of 190,000,000 printed more than 50,000 inches of news about the plumbing and heating industry in 1931. All of this material was written and distributed by the Bureau.

Thirty-four magazines with a total circulation of nearly ten million readers printed articles written by the Bureau in 1931. Among the magazines printing Bureau-prepared material were Better Homes and Gardens, The American Home, The American Builder, The Bankers' Monthly, Buildings and Building Management, Commercial America, etc.

Planographed reproductions of some of the more important newspaper articles and reprints of the significant magazine articles have just been reviewed by the board of directors of the Bureau, the board of directors of the National Association of Master Plumbers, the board of directors to the Heating and Piping Contractors National Association, and other leaders in the plumbing and heating industry.

The Bureau has summarized the significance of its publicity in newspapers and magazines as follows:

1. Newspapers and magazines print favorable rather than unfavorable news and comments about the plumber.
2. The old plumber's joke has been succeeded by constructive publicity beneficial to the industry.
3. The essential services of the plumbing and heating contractor are pointed out to the public.
4. Modernizing is emphasized and the public is told about the advantages of modern equipment.
5. The need for more bathrooms in the average house is pointed out.
6. Educational information on improvements in plumbing and radiator heating equipment and specialties is placed before the public.
7. The public is advised to buy its plumbing from the established and reputable contractor who sells only the products of manufacturers of unquestioned integrity.
8. Publicity offers to the industry the opportunity to tell the plumbing and radiator heating story in the way it should be told.

By continuing its publicity work, the Bureau feels that it is aiding the industry in the development of its intangible assets—good-will and consumer confidence. With the revival of home building, it is felt that these intangible assets will prove of great value.

While most of the articles are written about some phase of modernizing plumbing and heating equipment, others stress the advisability for the ultimate consumer of purchasing all plumbing and heating equipment from the established plumbing and heating contractor. An example of this is an article entitled "Petty Plumbing Economy Unwise," which was written recently by the Bureau and printed by 45 newspapers with a total circulation of more than 3,624,500. This article advises the public to buy its plumbing fixtures and repair parts only from the established master plumber.

Another article written by the Bureau and released to newspapers carried the headline, "Extra Bathroom Adds $1,000 to the Value of a House." This article was based on the opinion of bankers on the relation between adequate plumbing and the loan value of a house. The total circulation of this article was five million readers.

The nature of other articles released by the Bureau during 1931 is indicated by the titles: "Bathroom Costs Less Than Other Rooms in House," "There's a Boiler for Every Fuel and Heating Load," "Kitchen Sink Improved in Last Five Years," "Many Ways to Add to Efficiency of Old Heating Plant," "Tiny Closets Will Make Extra Baths," "New Shower Is Easy to Install Over Tub," "Modern Automatic Water Heater Built Like Thermos Bottle," "Flush Valve Is Space-Saver for Small Bathroom," "Heating Products Greatly Improved in Last 10 Years," "Think of Heating Plant as Machine, Not as Ton of Iron," "Cleaning Heating Plant No Job for Amateur Handy Man," "Modern Boiler Extracts More Heat from Fuel," etc.

In commenting on the publicity activities of the Bureau, the 1932 membership committee which is headed by Jere Sheehan, Jr., of St. Louis, Mo., past president of National Association of Master Plumbers, he said: "The publicity work of the Bureau is one of its most valuable activities. If purchased at advertising rates, this space would cost many times the Bureau's entire annual budget. Yet, it costs little to keep the Bureau going. The work of the Bureau is the biggest bargain in the industries today. The Bureau is worthy of the support of all manufacturers and wholesalers in the plumbing and heating industries."

Convention Dates

February 15 and 16, 1932—WEST VIRGINIA—The annual convention of the Master Plumbers Association of West Virginia, to be held in Martinsburg, with headquarters at the Shenandoah Hotel.

March 9 and 10, 1932—E. S. A.—The Spring meeting of the Eastern Supply Association, to be held at the Hotel Astor, New York City.

March 14 and 15, 1932—KANSAS—The annual convention of the Kansas Master Plumbers Association, to be held at McPherson, with headquarters at the Hawley Hotel.

March 14, 15 and 16, 1932—INDIANA—The annual convention of the Indiana Association of Master Plumbers, to be held at Muncie, with headquarters at the Hotel Roberts.

March 15 and 16, 1932—NORTH DAKOTA—The twelfth annual convention of the North Dakota Association of Master Plumbers, to be held at Fargo.

April 5, 1932—MASSACHUSETTS—The annual convention of the Massachusetts State Association of Master Plumbers, to be held in Boston, with headquarters at the Hotel Statler.

April 5 and 6, 1932—NEW YORK—The annual convention of the New York State Association of Master Plumbers, to be held in New York City, with headquarters at the Hotel Pennsylvania.

April 5, 6 and 7, 1932—MICHIGAN—The annual convention of the Michigan State Association of Plumbing and Heating Dealers, to be held at Mt. Clemens, with headquarters at the Medea Hotel.

April 11 and 12, 1932—ARKANSAS—The annual convention of the Arkansas State Association of Master Plumbers, to be held at Little Rock, with headquarters at the Lafayette Hotel.

April 11-16, 1932—A. O. B. A.—The ninth annual convention and show of the American Oil Burner Association, to be held in Mechanics' building, Boston, Mass. Convention headquarters at the Statler hotel.

April 18 and 19, 1932—MISSOURI—The annual convention of the Missouri State Association of Master Plumbers, to be held in Kansas City.

April 18 and 19, 1932—OKLAHOMA—The annual convention of the Oklahoma Master Plumbers Association, to be held at Enid, with headquarters at the Youngblood Hotel.

May 9, 10 and 11, 1932—N. P. S. A.—The annual convention of the National Pipe and Supplies Association, to be held at Pittsburgh, Pa., with headquarters at the William Penn Hotel.

May 16, 17 and 18, 1932—PENNSYLVANIA—The annual convention of the Pennsylvania State Association of Master Plumbers, to be held in Wilkes-Barre, with headquarters at the Mallow-Sterling Hotel.

May 16, 17 and 18, 1932—H. & P. C. N. A.—The 43rd annual convention of the Heating and Piping Contractors National Association, to be held at Detroit, Mich., with headquarters at the Book-Cadillac Hotel.

June 21, 22 and 23, 1932—N. A. M. P.—The 50th annual convention of the National Association of Master Plumbers, to be held in New York City, with headquarters at the Hotel Pennsylvania.

COMING TRADE EVENTS

February 1-6, 1932—Six-Day Short Course for plumbing inspectors, instructors, master and foreman plumbers, to be given by the College of Engineering, University of Wisconsin at Madison, Wis., in co-operation with the Wisconsin Master Plumbers' Association.

February 20, 1932—The annual dinner, dance and entertainment of the New York University Heating and Ventilating Engineers Society, to be held at the Hotel Taft, New York City.

February 24, 1932—The annual conference given by the Massachusetts State Association of Master Plumbers and the Massachusetts Sanitary Club at Massachusetts Institute of Technology, Boston, Mass.

March 12, 1932—The fourth conference of the Northern California Federation of Plumbing and Heating Industries, to be held at Sonoma Mission Inn, Boyes Springs, Calif.

June 20, 21, 22 and 23, 1932—Exposition of plumbing, heating and allied products, in connection with the 50th annual convention of the National Association of Master Plumbers in Madison Square Garden, New York City.

You always insulate heating lines *but–*

Don't miss the PROFITS
IN PLUMBING LINE INSULATION

It's not hard to sell the home owner on the benefits of insulating hot and cold water service pipes.

Show him the convenience of being able to get HOT water when he *wants* hot water, or COLD water when he wants cold — tell him how insulation prevents the costly repairs of frozen pipes — tell him how relatively little Johns-Manville Insulation for service lines really costs — and you can ring up many a profitable sale.

In new construction and in old homes as well, this business is wide open to you — don't pass it by.

Johns-Manville offers you *superior* Insulation for *all* water-pipe conditions . . . efficient . . . time-proven . . . produced by the world's largest manufacturer of insulation.

• • •

Four distinct types are available, each adapted to a specific service-line condition — Improved Asbestocel, Anti-Sweat, Wool-Felt and Zero. Our booklet, "Uncovering Covering Profits," tells you how you can make money with them. Send for your copy. Address Johns-Manville, 292 Madison Avenue, New York City.

JOHNS-MANVILLE PRODUCTS

Johns-Manville LOW PRESSURE INSULATIONS

Pittsburgh Chapter Forgets Business at January Meeting

The January meeting of the Pittsburgh Chapter of the American Society of Heating and Ventilating Engineers was held at McCann's dining rooms, Pittsburgh. Forty-five members and guests were in attendance when President Stanger called the meeting to order. Secretary Blackshaw read the minutes.

H. B. Orr, treasurer, reported a substantial balance in the treasury. E. C. Evans, chairman of the membership committee, spoke on membership in the Society.

There was no formal address at the meeting; instead, the members and guests enjoyed a smoker and get-together. Several interesting reels of motion pictures were shown.

◆

Western N. Y. Chapter Elects New Officers

New officers were elected at the January meeting of the Western New York Chapter, American Society of Heating and Ventilating Engineers, as follows: M. C. Beman, president; D. J. Mahoney, first vice president; J. J. Yager, second vice president; W. F. Johnson, treasurer; and W. E. Voisinet, secretary.

Joseph Davis, retiring president, called for and received reports from the various committes, which were accepted. He expressed his appreciation for the work done by these groups.

The evening was then turned over to H. M. Hammond, manager of sales and engineering, Bailey Meter Co., Cleveland, Ohio, whose topic was "The Use of Recording Instruments in the Boiler Room." With the aid of interesting and descriptive slides, Mr. Hammond gave an instructive and entertaining treatise on metering devices over a wide range of typical boiler plants. Measurement and charting of steam, draft, feedwater, etc., were clearly described and it was shown how the graphic relation as indicated was used to cut down boiler costs.

The Metal Market

	Feb. 1	Avg. Dec., 1931	Avg. Oct., 1931	Jan., 1931
PIG IRON—				
No. 2 foundry, Chicago	$16.50	$16.60	$17.20	$17.50
PLATES AND SHEETS—				
Steel boiler plates, Pittsburgh, per lb.	1.50c	1.50c	1.60c	1.65c
Blue annealed sheets, No. 10, Pittsburgh, per lb.	1.75c	1.85c	1.85c	2.05c
*Hot rolled annealed sheets, No. 24, Pittsburgh, per lb.	2.15c	2.40c	2.40c	2.35c
Galvanized sheets, No. 24, Pittsburgh, per lb.	2.80c	2.90c	2.90c	2.90c
TIN—				
Straits tin (spot) New York	21.70c			
LEAD—				
E. St. Louis	3.55c			

The Old Metal Market
Dealers' Buying Prices

	Per lb.		Per lb.
Aluminum clippings	11½c	Copper, light	4⅛c
Block tin pipe	15½c	Heavy crucible copper	5 c
Brass, light	2⅝c	Zinc, old	1¼c
Brass, heavy yellow	3 c	Lead, heavy	2⅝c
No. 1 comp. red brass	4⅛c	Solder joints (close cut)	3¾c
Heavy copper and wire	4⅜c		

NOTE: Prices are those quoted on Monday of this week.
*Comparisons are with old classification No. 24 black sheets.

THE C-D-S WATERPROOF GASKETS
READY TO USE — NO HEAT REQUIRED
C-D-S
WATERPROOF FELT
CLOSET BOWL GASKET

LEAVES NO STAIN ON FLOOR
THE original process used by the late Peter E. Snow is now available in the C-D-S Closet Bowl Gasket.
C-D-S Waterproof Felt provides positive protection against the ravages of moisture. It leaves no stain on the floor and does away with the old putty joint.
Install C-D-S Closet Bowl Gaskets, the ideal packing, in setting or re-setting closet bowls. Complete in a handy package with stud bolt packing at the right price at your jobber's. Order a supply of C-D-S Closet Bowl Gaskets today.
C-D-S PRODUCTS CORPORATION
Muncie : : : Indiana
THE C-D-S WATERPROOF GASKETS

PHOENIX
• Brass •
FITTINGS

DEPENDABLE
PHOENIX BRASS FITTINGS CORP.
IRVINGTON :: NEW JERSEY

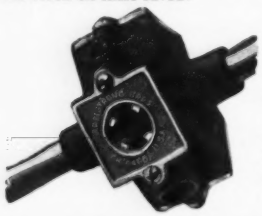
ARMSTRONG BROS.

Triplex Stock

Versatile
Accurate
Speedy

Here's a stock that carries three dies; that is always ready to cut any one of three different sizes of pipe; that eliminates the necessity for loose bushings and dies. Think what that means in convenience—in speeding up installation work. No more time wasted in carrying, selecting and changing dies. You can shift from one size to the next and back again *instantly*.

Body of the ARMSTRONG BROS. Triplex Stock is of Certified Malleable Iron, enamelled black with handles and face plates smoothly burnished and finished in dull nickel. Well-balanced, handy, accurate and durable, this stock is designed for maximum serviceability; will soon pay for itself in time saved.



Write today for Catalog P-10 which describes the "Better Pipe Tools" distinguished by the Arm-and-Hammer Trade Mark.

ARMSTRONG BROS. TOOL CO.
"The Tool Holder People"
323 N. Francisco Ave., Chicago, U. S. A.
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BURKS SUPER-TURBINE PUMPS

ONLY ONE MOVING PART

REAL SATISFACTION

Burks Super Turbine Pumps satisfy:

1. The DEALER because:

They produce a nice profit.
They build good will.
They stay sold.

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They deliver the goods:
They are long-lived.
They are a thrifty investment.

The smooth sweet hum of a Burks Super Turbine Pump is a welcome relief from the chug-chug of the old piston-type plunger pump.

Water System Bulletin No. 94-C
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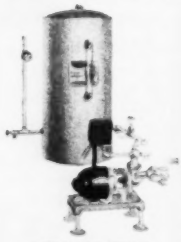
WATER SYSTEMS



SERIES 7750
HOME WATER
SYSTEM

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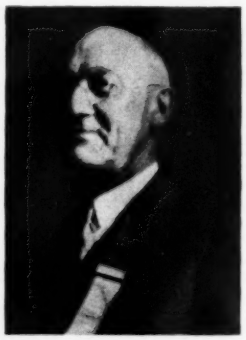
249 Delegates Attend Wisconsin Plumbers' Convention

THE Wisconsin Master Plumbers Association for many years has ranked among the leaders. Some of its services to members are not duplicated by similar organizations. This record of service, together with the program which was based on present day conditions, united to attract a large attendance to the 38th annual convention in Milwaukee on January 12-14. Registrations showed 249 members were present.

Among the topics covered by speakers on the program were reports of engineering, apprenticeship and sales conferences; an analysis of the new state plumbing law; market development with particular relation to co-operation with utilities; the new position of the plumbing and heating dealer in the 1932 business plans of manufacturers; annual meeting of the insurance company to which many of the state members belong; a discussion of merchandising and of trade associations; addresses by the president of the National Association of Master Plumbers, by the president of the Central Supply Association and by the secretary of the Plumbing and Heating Industries Bureau.

Lewis R. Friend retired as president of the Wisconsin Association after several terms in which he has made a record of energetic and efficient performance. He is succeeded by John P. McCoy of Fond du Lac. David Stern of Milwaukee is now first vice president. Andrew Tweet of Green Bay is second vice president. Charles



George F. Reeke, director, N. A. M. P.

Peter J. King, assistant secretary

J. P. McCoy, new president, and Lewis R. Friend, retiring president of Wisconsin association

Pelunek and Joseph Wittig, both of Milwaukee, were re-elected secretary and treasurer respectively. These five officers make up the new board of directors. They will be aided by an advisory committee composed of Jacob Schuh and F. C. Kuetemeyer of Milwaukee, and George Reeke of Green Bay. Joseph Brah, Milwaukee, and William Pugh of Racine were chosen as delegates to the national convention with Joseph Wittig and Adolph Zurheide of Sheboygan as alternates. Peter J. King, assistant secretary, had worked effectively for the success of the meeting.

In his first appearance at a state convention this year, President P. W. Donoghue of the National Association of Master Plumbers said that six months of operation had proved the value of the central office for his association. Additional help may be required to carry forward this work. He finds that the co-operative plan worked out with the American Gas Association is bringing more merchandising to master plumbers than any other program ever worked out. He wants all local groups to work out a co-operative plan with the utility company, his own city of Boston having just made the first agreement in 44 years.

In following issues abstracts will be brought to our readers of the significant features of the different addresses made at Milwaukee. This will include those talks given by President Donoghue, by President William J. Spillane, of the Central Supply Association, by Secretary Hildebrand of the Bureau and by R. V. Sawhill, Editorial Director of DOMESTIC ENGINEERING, and by representatives of the utilities. The talk by George H. Drake, past president of the National association, is printed in this issue.

Preceding the state convention, a one day conference on apprenticeship was held in Milwaukee. This was the fifth annual state wide conference for the plumbing industry of that state under the direction of the state board of vocational education.

This work has been actively carried forward during the past year and the discussions included not only reports of accomplishment but outlined future programs.

The committees in charge of the convention proceedings follow:

Credential Committee: Joseph Brah, Milwaukee; Walter Murphy, Sheboygan; Don Ahern, Fond du Lac; J. J. Stadler, Marshfield.

Resolution Committee: George F. Reeke, Green Bay; Robert Morrill, Beloit; P. H. Schneider, Sheboygan; Thomas Long, Appleton; Lewis J. Eron, Wisconsin Rapids; A. F. Boettcher, Milwaukee.

Auditing Committee: Patrick Curley, Milwaukee; Dan Osborn, Beloit; Otto Marquardt, La Crosse.

Memorial Committee: Edward J. Sullivan, Kenosha; D. Stern, Milwaukee; John Feiner, Racine.

Membership Committee: Fred J. Merton, Oshkosh; F. M. Branson, La Crosse; Erwin Knauer, Milwaukee.

Nominating Committee: Henry Smith, Racine; Ed. Garot, Green Bay; George Block, Milwaukee.

Apprenticeship Committee: Henry C. Weber, Milwaukee; Adolph Zurheide, Sheboygan; Robert Morrill, Beloit; Henry Smith, Racine.

Sergeant-at-Arms Committee: Harold Zentner, Milwaukee; Byron Graper, Milwaukee; Robert Schmidt, Milwaukee; Norbert Dittmer, Milwaukee.

Public Utilities Committee: F. C. Kuetemeyer, Milwaukee; Jacob Schuh, Milwaukee; L. R. Friend, Milwaukee; E. J. Sullivan, Kenosha; Robert Morrill, Beloit.

Press Committee: George F. Reeke, Green Bay; Ed. Trebs, Milwaukee.

Grievance Committee: Jacob Schuh, Milwaukee; Joseph Brah, Milwaukee; J. E. Farley, Wisconsin Rapids; Conrad Verbrick, Appleton; A. C. Fuge, West Bend; Jacob Zimmermann, Kenosha; George F. Reeke, Green Bay; John P. McCoy, Fond du Lac.

Cost Data Committee: Andrew Tweet, Green Bay; W. J. Femal, Green Bay; Ed. Garot, Green Bay.

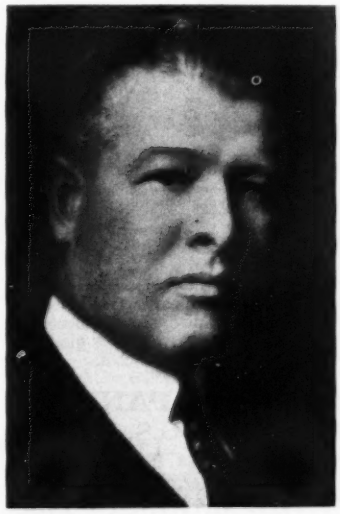
Home Finance Committee: Jacob Zimmerman, Kenosha; Edw. J. Sullivan, Kenosha; O. E. Stevens, Kenosha.

Committee on Survey: Henry Smith, Racine; William Pugh, Racine; Louis Schoenleben, Racine.

Committee on Sales Training: Henry C. Weber, Milwaukee; Andrew Tweet, Green Bay.

Milwaukee Entertainment Committee: A. A. Hoffmann, Milwaukee; H. A. Wegner, Milwaukee; Geo. Bronenkant, Milwaukee; Alfred Heiden, Milwaukee; Clarence Savadil, Milwaukee.

Preparations for the convention and the entertainment of the delegates had been worked out by officers of the Milwaukee Master Plumbers Association including Henry C. Weber, president; A. A. Hoffmann, vice president; A. F. Boettcher, secretary, and Peter Vogt, treasurer.



William J. Spillane, president of Central Supply Association, who is visiting many of the state conventions

Wise Men Say:

"A valve is no better than its disc" because the fact is continuously re-demonstrated by experience. The fact that valve designers have devoted unusual research, testing and skill to composition discs, therefore, is seen to be quite natural. A recent series of scientific and exhaustive tests have thrown many interesting new facts into bold relief. For example:

Disc No. 1
After 90-hr.test service.

Disc No. 2
After 4 months test service.

SCIENCE SELECTS BEST COMPOSITION DISC

The hard composition steam disc illustrated on the left is of unusually good quality and is used by first class manufacturers. The hard composition steam disc shown on the right is used in Ohio Brass Nos. 10, 11 and 15 lines.

As a part of a long series of tests, the above discs were placed in actual service at 125-lb. steam pressure on a boiler water column containing a great amount of suspended matter; water columns blown down (valves opened and closed) 12 times each day.

Now for the results; and it is only fair to say that these test conditions were so severe and extreme that the results do not cast any discredit upon the quality of the disc which made the poorest showing. The hard composition steam disc (left above) cut out and failed at 90-hr-service. The Ohio Brass composition steam disc (right above) was removed from service at 4 months; not because the disc failed but because its hard bronze seat cut out and was wire drawn.

While it is true that "a valve is no better than its disc", there are a number of other elements which distinguish good from inferior valves; features which Ohio Brass Wholesalesmen will gladly discuss with any contractor who will indicate his interest.

No. 10 Line; globe, angle and check composition disc valves; 150-lb. w. s. pressure.

No. 11 Union Bonnet Line; globe and angle composition disc; 150-lb. w. s. pressure.

No. 15 Line; globe, angle and check composition disc valves; 125-lb. w. s. pressure.

No. 3 Line globe and angle composition disc valves with or without "waste"; low pressure.

With the exception of the No. 3 line, these valves are regularly furnished (and so tagged for identification) with hard composition steam discs. The softer disc which is necessary for cold water, air, gas and similar services is gladly furnished when ordered, and at no additional cost.

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New York City · Philadelphia, Pa. · Chicago, Ill
WM. P. HORN CO., Los Angeles, San Francisco, Seattle

The *"PROFIT IN THE MAKE-UP"* Line

Many Local Associations Elect New Officers

Utica, N. Y.

Albert N. Obernesser was re-elected president of the Master Plumbers Association of Utica, N. Y., at the recent annual meeting of the association. Other officers re-elected were: John Schnitt, vice president; Ernest Marotta, secretary; and Henry F. Witte, treasurer.

Oklahoma City, Okla.

The Oklahoma City Master Plumbers Association, Oklahoma City, Okla., has elected the following officers for the ensuing year: S. G. Russell, president; Ralph Morris, vice president; and Jack Rice, treasurer. "Bill" Damon is secretary of the association. The board of directors is composed of Roy Patton, John McDonnell, J. J. Cosgrove and J. L. Swafford. The following have been named to the board of trustees: Emiel Radek, Ralph DeLautre and J. H. Volz.

Columbus, Ohio

The Master Plumbers Association of Columbus, Ohio, has elected as its president for the ensuing year, Joseph R. Jacobs. Elmer Siegle is the new vice president, and William A. Schneider has been re-elected secretary-treasurer.

Waterbury, Conn.

The Waterbury Master Plumbers Association, Waterbury, Conn., has elected the following officers for the ensuing year: John M. Gill, president; James Lowe, vice president; James Gorman, secretary. Mr. Gill will also serve as treasurer, in addition to his duties as president.

North Hudson, N. J.

The Master Plumbers Association of North Hudson, N. J., has elected N. Triani of Union City as its president for the ensuing year. Other officers are: Charles Botwinik, Union City, vice president; Clyde C. Cole, Weehawken, secretary; and J. C. Westervelt, Woodcliff, treasurer.

Mansfield, Ohio

The Mansfield Master Plumbers Association recently held its annual meeting and elected C. G. Critchfield to serve the association as president during the coming year. C. W. Ricker was elected vice president; and Henry Denig, secretary-treasurer.

Syracuse, N. Y.

The Syracuse Master Plumbers Association has elected William Drexler as its president for the ensuing year. H. C. Williams is the newly-elected vice president. James F. Guider is secretary; and M. Coling, treasurer.

San Diego, Calif.

The Merchant Plumbers' Association of San Diego has elected Edw. Rohde as its president for the ensuing year. Other officers are: C. F. Hoff, vice presi-

dent; Cal Powers, treasurer; H. J. Lambrechs, auditor; and A. C. Goeddel, secretary-manager. The board of directors is as follows: Edw. Rohde, C. F. Hoffman, Cal Powers, G. F. Radcliffe, H. Hubbs, M. A. Lundgren and H. J. Lambrechs.

Westerly, R. I.

The Westerly Master Plumbers' Association has elected the following officers for the ensuing year: Ernest E. Boyington, president; Moses Payne, Jr., vice president; John Cussack, secretary; and Earl Robinson, treasurer.

Bakersfield, Calif.

The Merchant Plumbers Association of Bakersfield, Calif., has elected the following officers to serve the organization during the ensuing year: L. F. Stange, president; William Smetzer, vice president; and I. Rees Jones, secretary-treasurer.

Erie, Pa.

The Erie, Pa., Sanitary Association has selected the following officers for the ensuing year: John Vorberger, president; Lawrence Spaeder, vice president; Joseph A. Anthony, secretary; and Fred W. Veith, treasurer. The board of directors consists of the following: Adam Heidt, chairman; Fred W. Veith, Arthur E. Meyer, Leo Purcell and H. J. Klebes.

Rockford, Ill.

The Master Plumbers Association of Rockford, Ill., recently held its annual meeting and elected the following officers: A. W. Carlson, president; Edward G. Young, vice president; Joseph T. Haeggquist, secretary; and Simon J. Carlson, treasurer.

Atlantic City, N. J.

The Master Plumbers Association of Atlantic City, N. J., has elected the following officers for the ensuing year: Harry H. Sparks, president; Fred Sharp, vice president; Roland Allen, secretary; and Norris L. Gaskill, treasurer.

East St Louis, Ill.

The Master Plumbers Association of East St. Louis, Ill., has elected the following officers for the ensuing year: M. J. Kickham, president; Ed. O'Leary, vice president; John F. O'Flaherty, secretary; and E. J. Maag, treasurer.

Cleveland, Ohio

The Progressive Association of East Side Master Plumbers of Cleveland, Ohio, recently elected the fol-

Left to right: R. F. Rowand, Lansing, state inspector; F. O. Racine, state inspector, Stambaugh; Robert Mout, Detroit, and George L. Martin, Rochester. Photos taken at the annual convention of the Michigan State Association of Plumbing and Heating Dealers, held recently at Muskegon

TRENTON
BRASS·PRODUCTS

Each Trenton Flush Valve upon its completion is an example of modern manufacturing efficiency.

Beginning with the highest quality materials of which Trenton Flush Valves are made down to the finishing touch, Trenton Flush Valves are made with skill and care that will assure you long service and customer satisfaction.

Your jobber carries them.

THE TRENTON BRASS & MACHINE COMPANY
Trenton • • New Jersey
Represented by ROLLIN C. WILSON
7 East 42nd Street . . . . New York, N. Y.
261 Franklin Street . . . . . Boston, Mass.

LOOK FOR OUR CATALOG IN PLUMBING & HEATING CATALOG

Keeps steam *IN* air *OUT!*

"Warco" No. 2 Vacuum Price $2.15

At a small additional cost over the Warco No. 1 Venting Valve, you can give your customer a

WARCO VACUUM SYSTEM

which keeps the radiators hot long after the fire is banked. Warco No. 2 Vacuum Valves are installed on the radiators, Warco No. 3 V or 6 on the Mains, and a Warco Compound Gauge on the boiler.

The Warco Vacuum System *increases heating efficiency* and *saves fuel.*

"Warco" Compound Pressure and Vacuum Gauge Price $4.25

Write for complete data

W. A. Russell & Co., Grand Central Terminal Bldg., New York
Chicago Boston Detroit Baltimore Denver Minneapolis

"Warco" Automatic Air & Vacuum Valves

lowing officers: Thomas H. Reid, president; George Sullivan, vice president; W. S. Richmond, secretary; G. J. Wehrle, treasurer; and John Schloz, sergeant-at-arms. The following make up the board of trustees: Thomas H. Reid, George Sullivan, H. Fagin, A. P. Keller and William Fussner. Edwin F. Bohm is acting secretary of the association.

Salem, Mass.

The North Shore Master Plumbers' Association, of Salem, Mass., has elected Maurice R. Sheehan to serve as president during the ensuing year. Thomas F. Kelaher is vice president; James H. Trow, secretary; and John F. Cabeen, treasurer.

St. Louis, Mo.

The Contracting Plumbers' Association of St. Louis, Mo., has selected Charles Burgess as its president for the year 1931-32. Other officers elected are: Roger E. Jarvis, vice president; D. C. Cunningham, secretary; and Henry Bartosch, treasurer. The directors are: F. J. Timmerman, Edw. Monteath, D. E. Hannegan, Robert Hunt and Samuel Burman.

Washington, D. C.

The Master Plumbers' Association of the District of Columbia has named J. H. McCarthy president for the ensuing year. J. A. High is first vice president; Frank Bentley, secretary; Thomas E. Clark, treasurer; Robert E. Anderson, second vice president; and William T. Gary, sergeant-at-arms. The board of directors consists of the above officers and the following: D. H. Alsop, Robert J. Barrett and Arthur Snowden. Edwin C. Reed is executive secretary.

Hazelton, Pa.

The Master Plumbers Association of Hazelton, Pa., and Vicinity, recently held its annual meeting and elected the following officers to lead the association during the 1931-32 term: C. H. Sherry, president; Norman Walk, vice president; Norbert R. Corrigan, secretary; and Christ Henderschedt, treasurer.

Asbury Park, N. J.

The Master Plumbers Association of Asbury Park (N. J.) and Vicinity has elected Frank X. Bangert as its president for the ensuing year. Other officers elected at the annual meeting were: Lloyd W. Casner, vice president; George E. Jemisen, secretary; and Archie Height, treasurer.

Harrisburg, Pa.

The Association of Master Plumbers of Harrisburg, Pa., recently held its annual election and named the following officers for the ensuing year: Harry D. Wilhelm, president; Norman C. Stine, vice president; and John H. Miller, secretary-treasurer.

Fort Wayne, Ind.

The Merchant Plumbers Association of Fort Wayne, Ind., has elected the following officers for the ensuing year: Louis Gollmer, president; Orville Fuller, vice president; E. F. Oelschlaeger, secretary; and M. C. Connett, treasurer.

JENKINS VALVES ARE ALWAYS MARKED WITH THE "DIAMOND"

New York Hospital, Cornell Medical College. Jenkins valves serve plumbing, heating, power, in this great hospital . . . *Jenkins Bros., 80 White Street, New York, N. Y.; 510 Main St., Bridgeport, Conn.; 524 Atlantic Avenue, Boston, Mass.; 133 No. Seventh Street, Philadelphia, Pa.; 646 Washington Blvd., Chicago, Ill.; 1121 No. San Jacinto, Houston, Texas. JENKINS BROS., Limited, Montreal, Canada; London, England. Factories: Bridgeport, Conn.; Elizabeth, N. J.; Montreal, Canada.*

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Jenkins Valves *for plumbing, heating and power*

IN almost no other type of building are valves more necessary or valve requirements more severe than in hospitals. The strict necessity for sanitation and for unfailing performance calls for valves of the highest quality.

It is significant that Jenkins Valves have been chosen throughout, for plumbing, heating and power service, in the new New York Hospital, Cornell Medical College.

Jenkins
BRONZE IRON STEEL
VALVES
Since 1864

ANSWERED

A few of the Questions of most general interest asked by readers and answered by our engineers

In this issue

1—Is Air Pumped Into a Plumber's Torch Also Used for Combustion

2—Should Four Drains from Meat Counter Be Trapped Separately

3—Venting Water Closets in School Buildings

—1—

To the Editor:

We should like to have your opinion on a question which arose in our shop today on the matter of gasoline plumbers' furnaces. Is the air that is pumped into the tank used only for supplying the necessary pressure to force the gasoline out of the tank at the burner nozzle or is this air also used for combustion? It is my opinion that the air pumped into the tank is merely to force the gasoline out of the nozzle, where—after being heated—it is flashed into vapor and furthermore, if pressure were maintained in the tank without air—as, for example, with a displacement pump—the furnace would function equally well as when air is the source of pressure.

Missouri. A. W. T.

The air pressure generated in a plumbers' gasoline furnace is for the purpose of forcing the gasoline out of the burner and no air escapes from the burner in the ordinary operation of the furnace except what small amount may be entrained in the gasoline. That is to say the burner is not a combined air and oil burner—it must be remembered that gasoline is a very light weight oil—and, if a mixture of air and oil were being burned and supplied from the tank, the tank would require repeated re-pumping. The air—or rather the oxygen—required for combustion is obtained from the surrounding outside air and not from the tank in the furnace. We believe our correspondent is quite correct in his assertion that, if the necessary gasoline pressure were maintained by any other means, such as by a pump or even from a gasoline line under proper pressure, the results obtained with the furnace would be practically identical.

—2—

To the Editor:

My sketch shows a job recently done in a local meat market. The job was passed. I think every one of the four drains should have been trapped. Please let me know whether I am right or not.

Massachusetts. A. M. C.

Correspondent's idea of proper connections is correct, and the work as installed is wrong.

To be sure, the installation is an indirect one, but there are other considerations that have to be taken into account.

Fig. 2 shows the correct method of connecting these

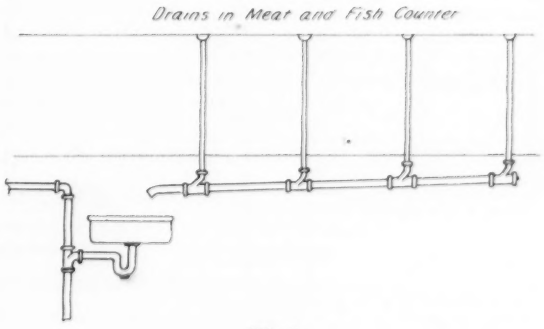


Fig. 1

four drains, with the traps placed as close as possible to the outlets.

As a matter of comparison, if these four drains were four refrigerators in private apartments, almost all plumbing codes would require the drain or drip pan to be trapped. This is done because it is necessary to take every precaution against contamination of the food in the refrigerator.

There are just a very few cities in the country that

do not require these traps, but they certainly are on the wrong track.

So far as we can see, there is no difference between the case of the refrigerator and these drains that we are discussing.

The traps are used in this instance, not to protect the premises or the food on the counters, from contact with

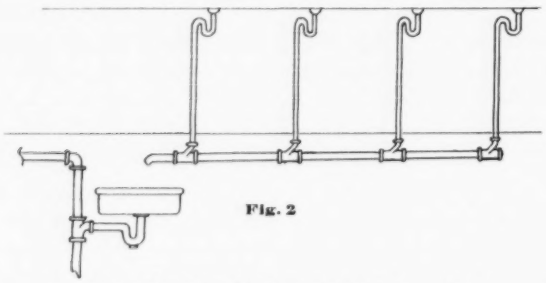


Fig. 2

sewer or drain air, for this is an indirect waste connection. Their purpose is to prevent foul air and odors from the fouled waste connections coming in contact with the food. This necessity amply justifies the use of traps, no matter how thoroughly the waste piping may be flushed out each day.

—3—

To the Editor:

Please give me your opinion concerning the school house installation shown in our illustration. We think it is a poor layout.

We claim that these two lines of water closets should

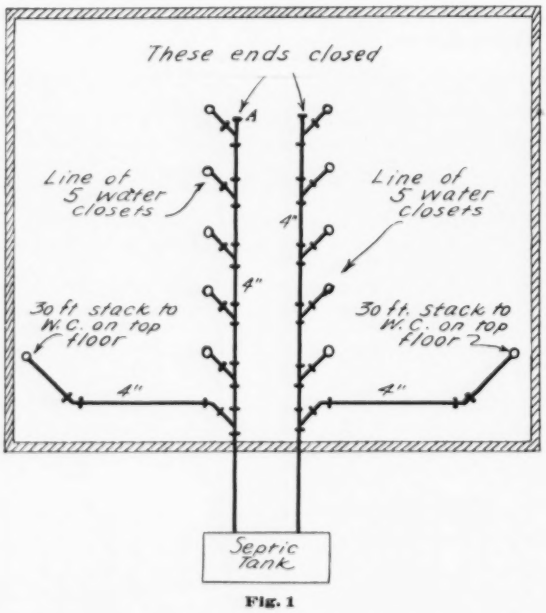


Fig. 1

be connected at point A, and vented with a stack through the roof. The architect seems to think it is O.K. with the two closed ends at point A. Each stack has one water closet on the upper floor.

Ontario, Canada. M. I.

As nearly as we can make out from the sketch that was furnished, the work is laid out as shown in Fig. 1. This shows each line of five water closets served by a separate horizontal soil line, each of these lines ending in a dead end. We take it that the other two stacks pass through the roof.

If it is necessary to run a separate horizontal line for each battery of water closets, the two lines should be joined together at some point such as A, and then car-

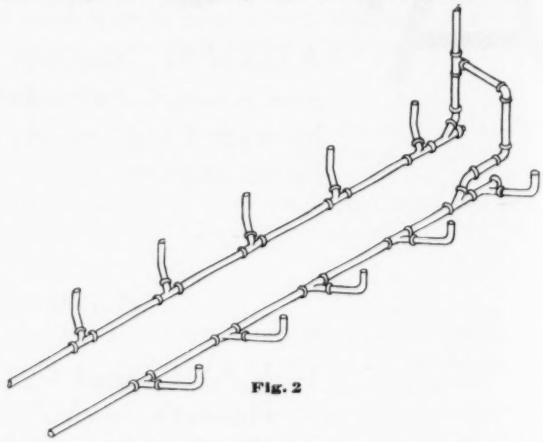


Fig. 2

ried through the roof. There is no question about this.

No plumbing code that is worthy of the name would allow these two lines to come to a dead end.

The extension of the drainage line through the roof is necessary for more than one reason.

In the first place, it is necessary as a means of venting the ten water closets, and preventing the possibility of

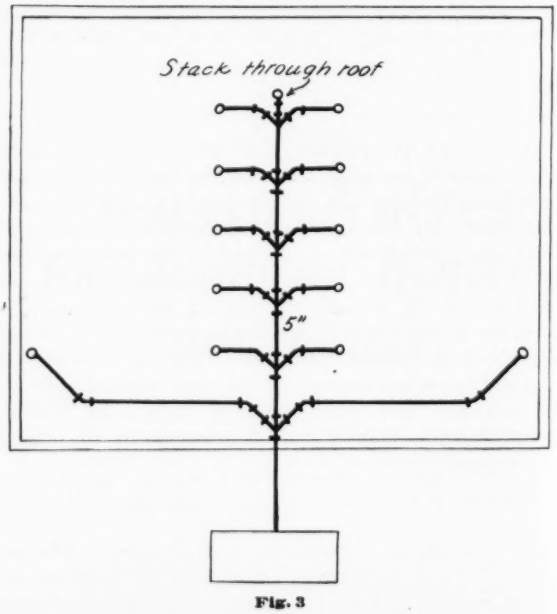


Fig. 3

the siphonage of any of them. Without the roof extension, these fixtures would be absolutely unvented.

If there are to be two lines, and the roof line is to rise at point A, we would suggest connections such as shown in Fig. 2. This is an isometric elevation, showing the two lines so connected as to give each of them a circuit vent.

However, without knowing any more than we do con-

cerning the conditions under which the work is installed, it looks unreasonable to us to use two separate lines for the ten water closets. Why not use a single 5-in. line, as shown in Fig. 3?

As far as we can see, it would be O.K. to reduce this 5-in. line to 4-in. from the point where it rises.

The method shown in Fig. 3 would save money, both in labor and material.

On general principles Fig. 3 would be more acceptable than Fig. 1, for the sufficient reason that in any installation, efficiency and effectiveness being equal, that system is the better which has the least number of fittings and the shortest length of pipe.

Questions Answered and Discussed by Readers

How the Question Was Answered

The following question was asked in the issue of January 9, and the accompanying answer is by a reader:

If the water pressure on the street main is 75 lb. and the highest fixture in the building is located 30 ft. above the level of the main, what will be the minimum water pressure at the fixture, if the water meter loss is 20 lb. and the pipe friction during the time of the maximum flow is 10 lb.? Also, what is the pressure at the fixture when no water is being used?

How Would You Answer This Question?

How much expansion should be expected from a steam line made up with steel pipe and 100 ft. long when carrying steam at 5 lb. gauge pressure if the line is erected in freezing weather? How much would the expansion increase if 100 lb. steam is used?

Answers based upon your experience, and suitable, will be paid for and published in the March 5 issue.

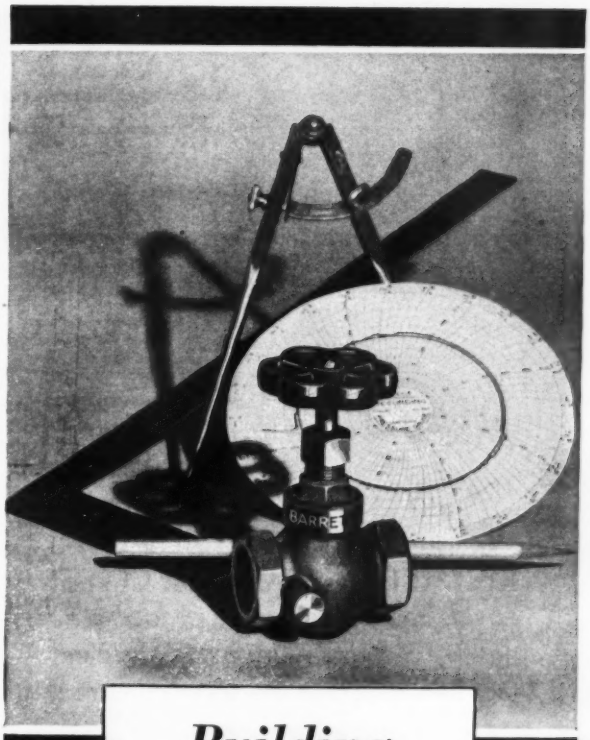
—1—

IN THIS problem there are two sets of conditions to be considered: the first is with the full quantity of water being used and the second is with no water being used. The primary factor to be developed is how much head is lost by the elevation of the highest fixture 30 ft., above the level of the main and, of course, this is calculated by multiplying the vertical height in feet by 0.43 lb., which is the amount of head generated by one vertical foot of height. This gives

0.43 lb. x 30 or 12.90 lb.

When there is no flow of water there is no friction loss—or pressure drop—in the line, or in the meter, so that the maximum pressure will be delivered to the fixture at this time and this pressure is the difference between the pressure in the street main and the pressure necessary to overcome the vertical head; in the instance under consideration this will be

Pressure in street main	75 lb.
Vertical head pressure	12.90 lb.
Net pressure at top fixture	62.10 lb.



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THE HIGH regard your customers have for you is the result of your efforts to maintain a known standard of craftsmanship. It pays to do a good job and it pays to use pipe, fittings, rough brass goods that measure up to your standards of craftsmanship.

For forty years, Barrett Plumbers' Rough Brass Goods have been built to a standard demanded by plumbing contractors themselves—you among them. Precision instruments and testing apparatus continuously guards the quality of the materials... the thoroughness of methods... the completeness of processes. A triple inspection of every finished article avoids compromising a known standard of worth.

Building a reputation for worth continuously for two score years has taught us that it cannot be done merely at a price... that the plumbing contractor, through experience, rather prefers rough brass goods built to his concept of solid worth. Ask your jobber's salesman for a sample of the Barrett line... a line built as *you* would have it built.

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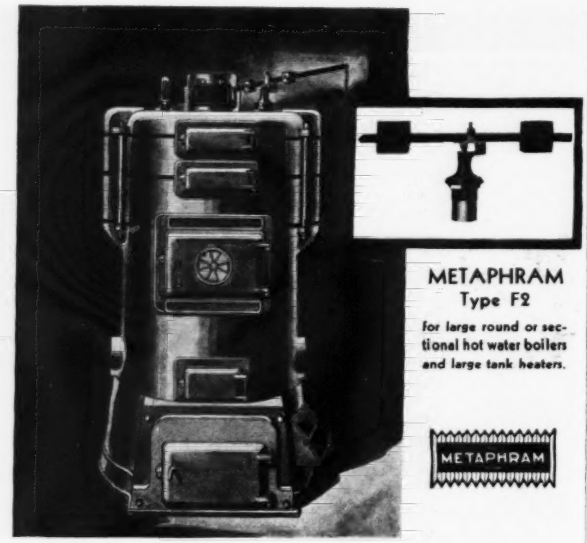
4606-4700 Hamilton Ave., Cleveland, O.

Compression Stops Compression Stops & Waste Ground Key Line Waterworks Brass Goods

BARRETT
PLUMBERS' *Rough* BRASS *Goods*

"THE STANDARD OF COMPARISON"



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Man—What a Boiler—with those

MALLEABLE IRON SPUDS

driven in by high speed hammers and with 6 or 7 clean, deep threads in a heavy reinforced collar. Now you know why pipe connections can't be anything but tight in

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JOBBERS: Write us for sample of any boiler for 30 days inspection.

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PENNSYLVANIA RANGE BOILER COMPANY
(Established 1895)
24th & Washington Ave. Philadelphia, Pa.

As soon as a faucet anywhere in the building is opened, water starts to flow and right away there is both a friction loss and a drop in pressure due to the water meter. The matter of the water meter should never be overlooked as it sometimes happens that this loss is more than all the other friction loss in the building. Again in other types of meter the loss is quite nominal especially when a meter of ample size is used.

The result of water flowing in the line is the placing of an additional drop on the pressure due to the energy required for the water to force its way through the pipes and also through the meter. According to the problem this friction loss when the maximum amount of water is being used, amounts to 20 lb., at the meter, and 10 lb., more in the piping; as a result the total pressure drop under the worst conditions would be

Drop due to head	12.90 lb.
Drop due to pipe friction	10.00 lb.
Drop due to meter	20.00 lb.
Total pressure drop	42.90 lb.

and, since the water main has a pressure of 75 lb., the net pressure delivered at the fixture during the worst conditions of load would be

Pressure on main or total pressure	75 lb.
Pressure losses between main and fixture in pipe and meter	42.90 lb.
Net pressure at fixture inlet	32.10 lb.

In this particular case 32.10 lb., is adequate for any reasonable fixture service but it often happens that the fixture which is highest will not receive adequate pressure at all times; for example, the pressure on the street main is taken as 75 lb., per sq. in., but few street mains carry the same pressure constantly. The pressure in the street main is quite likely to vary along the same manner as that in the building; that is to say, the heavier the flow in the street main, the less will be the pressure owing to a portion of the pressure being used up to overcome the friction in the main. It is not at all uncommon to find house tanks on the top of buildings which can be filled with street pressure sometime during the night but during the day the pressure is so low as to require pumping.

The worst feature of this is the fact that the lowest pressure in the street main is most likely to occur when the demands in the building are the heaviest and when the greatest pressure should be available rather than the least; to balance this undesirable feature many buildings put in large house tanks combined with centrifugal pumps with electric float control. The result of this arrangement is that the water from the city main will feed through the centrifugal pump and up into the house tank as long as the main pressure is sufficient to reach the level of the tank. As soon as the pressure falls to a point where it no longer delivers water into the tank, the level of the water in the tank begins to lower due to the water being drawn off for building use and, as soon as the float switch has dropped sufficiently to make contact, the pump is started and the tank is refilled by the pump. In this way no water is pumped when the street main can supply the tank but, as soon as the street main fails to have sufficient pressure to do this, the

pump automatically comes into operation and meets the emergency.

Another cause of severe fall in pressure in the street mains is in case of large fires when the fire department pumping engines are drawing tremendous quantities of water in addition to all the normal uses which still continue; however, these are abnormal and occasional conditions so that in many cases they may be ignored although, as previously pointed out, the house tank and centrifugal pump are good insurance against lack of either water or water pressure as long as any water remains in the main to supply the pump.

Heat Office Building with Refrigerating Equipment

(Continued from Page 27)

ing; this enlarged pent house includes a cooling tower through which the air is forced by means of fans. When the air once in a long while gets so cold that there is danger of freezing the water in the sprays, the refrigerating machinery is shut down, and direct electric heating is depended upon entirely. In this installation methyl chloride is circulated by four compressors, each having a capacity of 120 tons and each driven by a 200 hp. motor of the synchronous type. In summer the system is used for cooling, which requires only about three-fourths the capacity of the plant. Large fans, some in the basement and some in the roof tower, distribute the heat by means of an air stream. The system is expected to deliver from two and a half to three times the heat energy put into it, the compressors working, according to report, at about 25 lb. suction and 100 lb. discharge. The air is supposed to be heated to 80 deg. Fahr. in winter, being cooled by the same equipment 15 to 20 deg. below outside temperature in summer.

The building has a content of 3,778,000 cu. ft. and a gross floor area of 269,000 sq. ft.

The electrical heating system is divided into two parts, the direct heaters in the offices, and the indirect heaters adjacent to the ventilating fans. There are 739 direct heaters having a total capacity of 1,329 kw. These are installed under the windows of all offices, and range in size from 1½ to 5 kw., the majority being of 1½ kw. capacity. These heaters operate at low temperatures (so-called black heat), so there is no discomfort to a person working close to them. Each direct heater is provided with a single-pole thermostat that controls the heater current direct, permitting the occupant of the room to regulate the temperature to suit his needs.

Circuits are so arranged that the heaters on each floor are divided into four groups. This permits a portion of a floor to be used without having to heat the entire floor. All direct heaters operate at 115 volts, and are supplied by a 115/230 volt, 3-phase, 4-wire system.

The indirect heaters are made up of banks of 3.8-kw., 110-volt ribbon-type units, connected three in series on 440-volt, 3-phase service, thus giving a little over 20 kw. per set of three. The total capacity of all indirect heaters is 1,589 kw., distributed as follows: 611 kw. in the tower, 856 kw. in the basement and 125 kw. in the auditorium. Temperature is controlled by thermostatic

EXPAN-HUB SOIL PIPE

Without *extra cost*, to you or the building owner, you can install EXPAN-HUB on every job. Every one *knows* it is better pipe, so there's no good reason for not using it. ASK YOUR WHOLESALER.

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DESTROY FUEL OIL SOOT

Quick, clean removal of all soot! No fuss or bother! Simply shoot E-Z into the flames! Makes burner, fire-box and flues clean as new. Never fails to do a perfect job.

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Stop this!

Eliminate those unexpected "shots" of hot and cold water in shower baths. Stop the time wasted in trying to get water at the right temperature. Install Powers Mixers. Write for 20-page book.

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Offices in 37 Cities

With The POWERS SHOWER MIXER

CATALOG "F" commemorating our TWENTIETH ANNIVERSARY

From 1912 to 1932, we have designed and manufactured a line of mechanical rubber specialties, and now at the end of our first 20 years of service to you, we offer Catalog "F" as proud proof of the service we have been, and will continue, to render you.

Ask your jobber for a copy of our 20th Anniversary Catalog

LAVELLE RUBBER COMPANY
320 W. Illinois St. CHICAGO

LUCKY STRIKE RUBBER PRODUCTS

$3,000 RING *found in bath tub*

THIS departing guest was frantic: A $3,000 diamond ring lost—and he couldn't wait to look for it. With agony in his voice, he called the United Manager. Three hours go by. The guest has gone, but the manager is still on the job.

A wild idea—the Manager pokes a flash-light down the bath tub drain—there's a faint sparkle—plumbers arrive, the drain gives up a $3,000 ring.

Another true story proving that United Managers do the impossible in finding lost articles. This extra service costs the hotel money? Yes, but what of it. Extra service is taken for granted at United Hotels, just like larger rooms per dollar—and handy garage accommodations.

Extra service at these 21

UNITED HOTELS

NEW YORK CITY's *only United*.....The Roosevelt
PHILADELPHIA, PA.....The Benjamin Franklin
SEATTLE, WASH.....The Olympic
WORCESTER, MASS.....The Bancroft
NEWARK, N. J.....The Robert Treat
PATERSON, N. J.....The Alexander Hamilton
TRENTON, N. J.....The Stacy-Trent
HARRISBURG, PA.....The Penn-Harris
ALBANY, N. Y.....The Ten Eyck
SYRACUSE, N. Y.....The Onondaga
ROCHESTER, N. Y.....The Seneca
NIAGARA FALLS, N. Y.....The Niagara
ERIE, PA.....The Lawrence
AKRON, OHIO.....The Portage
FLINT, MICH.....The Durant
KANSAS CITY, MO.....The President
TUCSON, ARIZ.....El Conquistador
SHREVEPORT, LA.....The Washington-Youree
TORONTO, ONT.....The King Edward
NIAGARA FALLS, ONT.....The Clifton
WINDSOR, ONT.....The Prince Edward

UNITED HOTELS

operation of the heater banks in six steps set one-half degree apart. The main circuit breaker on each heater bank is interlocked with the fan control so the heater cannot be energized unless the fan is operating. A temperature trip is provided to deenergize the heaters in case the air temperature becomes excessive.

On account of the large size of the building the ventilating system was divided into three parts: the basement system serves the first six floors, the tower system provides for the remainder of the building excepting the auditorium, which has its own system. The combined capacity of the three systems is 193,000 c.f.m., which is equivalent to six changes of air per hour.

All fans are driven by variable-speed motors with cog-belt drive. The air is passed through multi-panel air filters and treated for the removal of odors. Water supplied the washers is automatically maintained at the proper temperature for humidity control. The air washers and heaters are bypassed with automatically operated dampers. The air washers and cooling equipment are proportioned to maintain a building temperature 15 to 20 deg. below the outside temperature, which has been found to be the maximum practical difference for this climate.

Reheating after dehumidifying is accomplished by bypassing the required amount of return air around the air washer. This results in a saving in operating cost, as the reheating would otherwise have to be done electrically. The amount of air bypassed, and therefore the temperature of the air supplied, is regulated by a damper which is operated by a dry-bulb thermometer in the return-air duct. The return air is fairly representative of the conditions in the building, so regulation is made at that point.

The amount of return air wasted is determined by the positions of two dampers, and the amount of fresh air entering the system by a third damper. These three dampers are automatically regulated by a wet-bulb thermometer in the fresh-air duct. When the outside wet-bulb falls below that maintained in the building two dampers open while a third closes, thereby increasing the amount of outside air taken into the system. This results in a reduction in the refrigeration load, as the lower the wet-bulb the less excess moisture there is to be removed from the air. A minimum of about 25 per cent of fresh air is supplied at all times to make up for the air lost through leakage and the lavatory exhaust system. All lavatories and some of the rooms in the medical department are connected to a separate exhaust system discharging to the outside, although these rooms are supplied from the main system.

The duct system is so arranged that air can be supplied through a register near the ceiling and exhausted at the floor line, or the reverse if desired. It has been found most satisfactory, however, to supply both heated and cooled air at the ceiling, as this results in a minimum of drafts. For the proper operation of the system all windows must be kept closed.

When water is recirculated in an air washer both the water and the discharged air attain practically the wet-bulb temperature of the entering air; also, the air discharged is practically saturated, that is, it has 100 per cent relative humidity. Treating air in this simple manner will result in a fairly satisfactory low temperature,

but the high humidity is undesirable. If the water supplied to the air washer is cooled so that the air discharged is at the dew point corresponding to the humidity desired at room temperature, then the air leaving the washer will contain the proper amount of moisture to give the desired humidity after being reheated to the temperature of the room. If it is desired to maintain a dry-bulb room temperature of 72 deg. with a relative humidity of 50 per cent, the air leaving the washer will have to be cooled to 52 deg., as that is the dew point corresponding to the room conditions. Saturated air at 52 deg. contains the same amount of moisture, 58 gr. per pound, as 72-deg. air having 50 per cent relative humidity.

To condition the 193,000 c.f.m. of air supplied to the building 480 tons of refrigeration is required. The equipment consists of four 120-ton duplex rotary compressors directly connected to 200-hp. synchronous motors operating at 1,000 r.p.m. The refrigerant is methyl chloride and the normal conditions for cooling are 25 lb. pressure, 36 deg. Fahr. suction and a head pressure of 85 lb. gage and temperature of 180 deg. Fahr. Each 120-ton compressor under these conditions will require not over 155 hp.

There are four two-pass condensers, each having a surface of 2,790 sq. ft. Condensing water is supplied by two 40-hp., 900-g.p.m. pumps, which force the water to two special air washers on the roof as used as cooling towers. Each washer is equipped with a 130,000-c.f.m. 50-hp. fan. To produce the maximum cooling effect the air washers are equipped with a duplicate set of nozzles, and the water is passed through the two sets in series. A separate pump is installed to force the water through the second set of nozzles.

The air washers for the basement, tower and auditorium systems are installed on different levels; so it was necessary to use a separate cooler for each system, as the cooled water could not be distributed satisfactorily at three different pressures from a single source. Specially designed vertical-tube coolers were used, all coolers being of the same height and set at the same elevation. This arrangement permits the coolers to be supplied with refrigerant from a common source. The liquid refrigerant passes from the liquid receiver under the condensers through an expansion valve into a vertical accumulator. From the bottom of this accumulator the liquid flows to each cooler. The gas from the tops of the coolers is piped to the top of the accumulator, and at this point the suction line to the compressors also is connected. A separate pump for each cooler circulates water through the cooler to the air washer. The water temperature is controlled by a thermostatically operated valve bypassing the water around the cooler.

The refrigerating compressors are controlled by a thermometer inserted in the central tube of the basement cooler. The controller cuts the four compressors in or out as the load requires, and maintains the liquid temperature with a variation of only one degree. It also energizes control circuits which start up the synchronous motor exciters, cooling-tower pumps, fans, etc., in the sequence required for the number of compressors operating. After a year's operation some interesting and valuable facts should be available.

The duct system was installed by Thos. Haverty Company of Los Angeles.

Fig. 1941 Taber Midget Sump Pump

It works . . . . . .
when needed most

After heavy rain-storms there is an increased demand for Taber automatic Midget Sump Pumps. Frequently they replace "low price" cellar drainers inadequately motored.

Why wait for a peak load to tell whether the pump will work? Avoid troublesome, profitless service calls . . . install Taber first. The owner of any sump pump expects "Dry Cellar Insurance." He gets it with a Taber Midget.

Bulletin and prices on request. Also see Page 923 Domestic Engineering Catalog.

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TABER PUMP CO *Est 1859*
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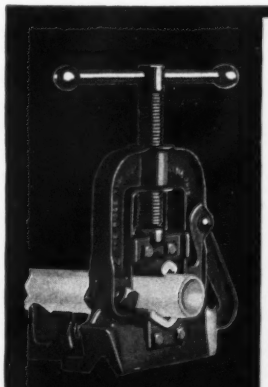
SUPERIOR
SHOWER HEADS
Why?
No holes to clog.
Uses 50% less water.
Adjustable spray.
Works on low pressure.
LOW PRICED
Ask your jobber.
MILWAUKEE FLUSH VALVE CO., Milwaukee, Wisc.



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VISES
NO-MAR Jaws on RIDGID Yoke Vises . . . Pipe rests and pipe benders on *all* RIDGID Vises . . . Strength enough to stand many years of hard work and abuse. At your Jobber's. Made also in stand, Post chain and yoke type, all sizes.
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TAKE A DART APART--

Look into the inside of a DART UNION .... see what they are made of....and how they are made ....there before you are the TWO BRONZE SEATS, ground to a ball joint seat .... reasons for the claims we make of DART service .... of DART satisfaction .... of DART economy.

E. M. DART MFG. CO., Providence, R. I., U.S.A.
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Items for STORE, SHOP *and* JOB

Air Conditioning Units for Cooling and Heating

Readers will find in this department news of our industry's progress in the manufacture of equipment. You can read of the efforts of manufacturers to develop products which will increase customer demand, will make shop methods more efficient and will simplify installation.

A letter to the editor of "Domestic Engineering" will bring you the name and address of the manufacturer of any product in which you are interested.

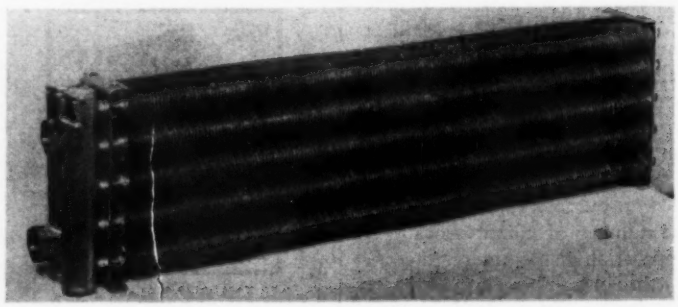
A LINE of air conditioning products of the individual unit type has just been placed on the market. The items have been developed for installation and service in private residences, apartments, commercial establishments, offices, restaurants, shops and hospitals. The first public showing was made last week in Cleveland at the exposition of the American Society of Heating and Ventilating Engineers and the American Society of Refrigerating Engineers. The units have been designed to cool, heat, clean, dry, humidify and circulate the air in the rooms where they are placed.

The cooling is accomplished by cooling coils and a refrigerating unit which may be located in the room being cooled, in an adjacent closet, in the basement or in some other remote place. All of the models have spiral finned tubing cooling coils while two of them have spiral finned tubing heating coils.

The line of units consists of a horizontal floor type in two models, a vertical floor type in two models and a suspended type. The two horizontal wall models are 14 in. in width, 39¼ in. in length and 31¾ in. in height, covering a floor area of 5½ sq. ft. The vertical wall type models are 14 in. in width, 28¾ in. in length and 42⅝ in. in height. The unit which is suspended from the ceiling has overall dimensions of 24 in. in width, 18¾ in. in depth and 22 in. in height, covering 4 sq. ft. of wall space. Both of the floor models are equipped with centrifugal fans powered by 1/20 hp. motors. The vertical units handle 450 cu. ft. of air per minute while the horizontal ones handle 550 cu. ft. per minute.

Where the compressor is required to be placed in the same room with the cooling unit, a housing designed to be sound proof is provided. It is 46 in. in width, 30 in. in depth and 30 in. in height. Sound insulation is provided in the form of a foundation of corkboard 3 in. thick. The walls and top of the cabinet are lined with two ½-in. layers of insulating material.

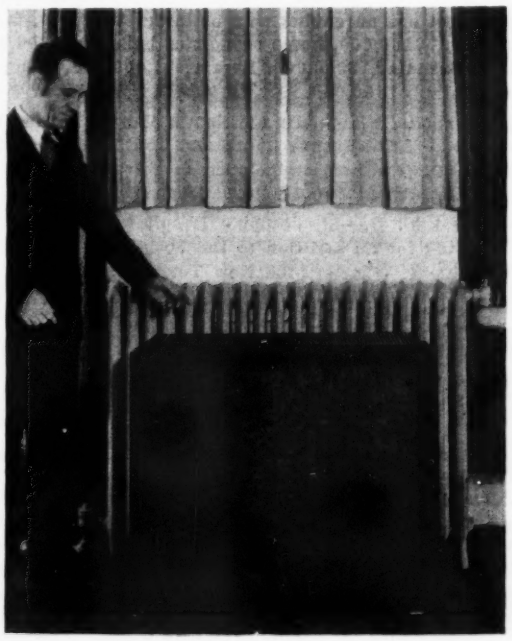
In the floor types, the room air is drawn from the floor and into the unit where it is blown over the cooling coil which is maintained at an average temperature of 45 deg. Fahr. This operation is designed to remove humidity, the percentage of dehumidification being de-



The four illustrations on these two pages show a new line of air conditioning units and the heating coil used in them. A similar coil is used for cooling.

pendent upon the relative humidity and the temperature of the room. After the air is cooled, dehumidified and cleaned in its passage through the cooling coil, it is sent through a grille in the top of the unit at an angle of 20 degrees. The operation has been designed so that the air is moved at a rate that provides a complete cycle within eight minutes in the average room.

In the heating season, the refrigeration unit becomes inoperative and the heating coil, connected to the owner's existing hot water, vapor or steam heating system, begins to function. The heated air is moistened by the dissipation of water from the humidifier and is delivered into the room by the centrifugal fan. Water for humidification is obtained by tapping the regular water system in the home. The Frigidaire Corporation, Dayton, Ohio is the manufacturer.



Read These Features Right Out Loud !

SMART, modern beauty of design . . . Seat lid fits into depression, when raised, saving space . . . Closet extends into room two to four inches *less* than ordinary combinations. Tank bolted direct to bowl, not to the wall . . . Back is highly glazed . . . *Can be placed anywhere in room.*

No metal flush valve, rubber ball rests in seat ground in the bottom of tank . . . No elbow or offset connection, no coupling nuts, no flush valve or spud in bowl.

These are the features that make the Revelation easier to sell, easier to install—trouble-free. By all means, write your jobber or nearest factory branch for more complete details.

Revelation

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Peerless-Colorado Company
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Peerless-Missouri Company
5021 Fyler Avenue
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Peerless-Northern Company
Charles and Vandalia Sts.
St. Paul, Minn.

Plumbing Fixture Company
12414 Euclid Avenue, East Cleveland, Ohio

Large Construction Projects

Even though new construction is at a low ebb compared with recent peak years, the fact remains that new projects are being started every day. Listed below are just a few of the larger building operations, either contemplated or only recently started.

Burlington, Mass.—Preliminary plans by Whitman & Howard, 89 Broad street, Boston, Mass., have been completed for the proposed $200,000 water supply system in the Vine Brook Section. Final action will be taken at the town meeting in February. Newell H. Hawes is chairman of the committee.

Lynn, Mass.—Plans are in progress for a new post office building at Willow, Oxford and Buffam streets, to cost $700,000. James A. Wetmore, Washington, D. C., is supervising architect.

New Haven, Conn.—City hall buildings are being planned to include police and city court, auditorium, and municipal units. Edgerton Swartout, 10 East 40th street, New York, is architect. Edward S. Nettleton is city engineer.

Amherst, Mass.—Amherst College will take bids in May for $150,000 theater from plans by McKim, Mead & White, 101 Park avenue, New York City, Warren W. Chapin, 110 East 42nd street, New York City, is structural engineer.

Clinton, N. Y.—A junior and senior high school building, to cost $350,000, will be built this summer. The state has approved bonds. Robert O. Burns is president of the board of education.

Syracuse, N. Y.—Goodyear Tire and Rubber Co., of Akron, Ohio, will erect a $400,000 four-story building in this city, work to start as soon as the present buildings are razed on the site at East Water and South Townsend streets.

Chicago, Ill.—McLennan Construction Co., Chicago, has the general contract on the U. S. post office at Texarkana, Tex., and the Army and Navy General hospital at Hot Springs, Ark.

New York, N. Y.—The new home of the First National Bank will cost $2,000,000, according to plans filed with the Manhattan bureau of buildings. Walker & Gillette are the architects.

New York, N. Y.—Walker C. Martin, Flatbush avenue and Concord street, Brooklyn, is architect for a three-story school building to be built on Stadium avenue. The cost is estimated at $258,000.

Toledo, Ohio—A $200,000 addition to the Columbian high school will be started early this year.

Chicago, Ill.—Rosen & Fischel, Inc., Chicago, have been awarded the general contract for the $160,000 post office at Maywood, Ill. The same firm has the contract for the new post office in Beloit, Wis., to cost about $110,000.

Detroit, Mich.—The Detroit Edison Co. will spend from eight to nine million dollars during 1932 on new construction work.

Washington, D. C.—The W. P. Rose Co., Greensboro, N. C., with a low bid of $152,800, has been awarded the general contract for construction of a firehouse on 13th street.

Nebraska City, Nebr.—St. Mary's Catholic church of which Rev. R. Stolz is pastor, will build a combination church and school at Sixth street and First avenue, to cost $100,000.

Rockford, Ill.—Bids will soon be taken for the construction of a new postoffice here to cost $375,000. Bids have already been taken for clearing the site for the building.

Omaha, Nebr.—A plumbing and heating contract totaling $17,860 has been awarded to J. J. Hanighen Co., 617 South Fourteenth street, for the tunnel and boiler house at the state school for deaf. Lawrie & Stockham, 618 Paxton Block, are the architects.

Chadron, Nebr.—Plans for a girl's dormitory building here to cost $100,000, are being prepared by Arthur D. Baker, architect, Clinic building, Grand Island. R. I. Elliott is president of the state normal school at Chadron.

Winnebago, Nebr.—George C. Hunt, 371 Wisconsin street, Southwest, Huron, S. D., has been awarded the plumbing and heating contract for the hospital building at the Indian agency here. The plumbing and heating contract amounted to $28,000.

Austin, Tex.—The University of Texas, J. W. Calhoun, comptroller, of the Board of Regents, will soon take bids for the construction of several university buildings to cost

Left to right: W. A. Roberts, Boston; Ed. Dougherty, J. A. Sexauer Mfg. Co., New York City; Martin Brennan and A. L. Gustafson, Holyoke Heater Co., Holyoke, Mass. Photos taken at annual convention of Massachusetts State Association of Master Plumbers, held recently at Boston

$2,600,000. Herbert M. Green, La Roche & Dahl, Insurance building, Dallas, are the architects. Included in the project are an engineering building, $300,000, men's dormitory, $200,000, home economics building, $350,000, geology building, $300,000, library, $1,000,000, and physics building, $450,000.

Minneapolis, Minn.—An addition is planned to the Curtis hotel at Third avenue South and Tenth street, to cost $2,000,000. The project includes a central structure between the present two 12-story wings.

Mitchell, S. D.—St. Joseph's Hospital here is having plans made for an addition to the hospital to cost $100,000. John H. Wheeler, 403 New York building, St. Paul, Minn., is the architect.

Minneapolis, Minn.—Bids will soon be taken for the construction of the second unit of the men's dormitory at the University of Minnesota to cost $300,000. The unit will have facilities for 250. C. H. Johnston, 360 Robert street, St. Paul, is the architect. Pillsbury Engineering Company, 1200 Second avenue South, Minneapolis, are the engineers.

Minneapolis, Minn.—Bids will soon be taken for the construction of a nurses' home at the University of Minnesota to cost $325,000. There will be facilities for 290 nurses. C. H. Johnston, 360 Robert street, St. Paul, is the architect. Pillsbury Engineering Company, 1200 Second avenue South, Minneapolis, are the engineers.

New Trade Literature

Catalog of Shampoo and Lavatory Faucets

The Royal Brass Mfg. Co. of Cleveland, Ohio, has issued a catalog of shampoo and lavatory faucets for barber shops and beauty parlors. These faucets are finished with polished nickel plate or chromium plate. The catalog consists of 16 pages, 3¼x6¼ in.

Catalog of Heating Specialties

Sarco Company, Inc., of New York City, has just issued a 16-page catalog, 8¼x10¾ in., illustrating and describing in detail its heating specialties, including vacuum and vapor heating systems, radiator traps, packless radiator valves, air eliminators, alternating receivers, combination float and thermostatic traps, self-cleaning strainers, compound gauges for vapor systems, damper regulators, temperature regulators and thermostatic steam traps. This catalog is printed in two colors, black and ivory.

Catalog of Vises and Pipe Tools

Hollands Mfg. Co. of Erie, Pa., has just published a 12-page catalog, 3½x6¼ in., describing and illustrating its vises and pipe tools, including solid jaw vises, swivel base vises, swivel jaw vises, bench vises, anvil vises, scout vises, combination vises, hinged pipe vises, clamp vises, roller jaw pipe vises, pipe cutters and stocks and dies. The catalog also lists melting, malleable iron ladles and babbitt ladles.

Catalogs of Peerless Heater Co.

The Peerless Heater Co. of Boyertown, Pa., has issued catalogs of its sectional and round jacketed boilers for steam and hot water heating, and its oil burning boilers, gas boilers and equipment for steam, hot water, vapor heating and hot water supply systems. Tables of rates and dimensions of the various boilers are included as well as pointers on how to select a boiler, how to specify gas boilers, and how to figure gas consumption.

Catalog of Gas Boilers and Air Conditioning Units

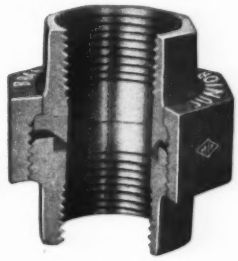
The Bryant Heater & Mfg. Co. of Cleveland, Ohio, has just issued a catalog of gas boilers and air conditioning units, consisting of 24 pages, 8½x10¾ in. This catalog covers this company's line of automatic gas boilers and its hot water storage systems as well as its air conditioning units, a combination of steam heating and air conditioning. It contains detailed descriptions with illustrations of these various products and their adaptations, together with tables of ratings and sizes and dimensional drawings.

The 1931-32 Edition of Modern Heating

Warren Webster & Co. of Camden, N. J., have just issued the 1931-32 edition of "Modern Heating," being a 20-page catalog of this company's vacuum systems of steam heating and its steam specialties, including radiator supply valves, return traps, drip and heavy duty traps, dirt strainers, boiler return traps, vent traps, boiler protectors, damper regulators, lift fittings, expansion joints, vacuum governors, air separating tanks, etc. All these specialties are illustrated and described in detail. Diagrammatic arrangements of the various types of this company's heating systems are also included in this catalog together with specifications. Among the important points covered by these specifications are the following: Boiler, smoke pipe, boiler protector, hot water heater, pipe, fittings, piping, sleeves and plates, supports, pressure reducing valve and gauge, key room thermostatic control, radiator supply valves, radiator metering orifices, intermediate metering orifices, radiators, concealed heat units, recesses for heat units, grilles, unit heaters, vent trap, condensate pump and receiver, vacuum pump, and control equipment. It will thus be seen that this catalog has a large amount of information of interest to the heating trade.

M|F

The M. I. F. Trade Mark on each fitting is for your protection



BRANFORD UNIONS

BRASS TO IRON SEATS • BRANFORD 350* W. P. • BRANFORD JR. 250* W. P.

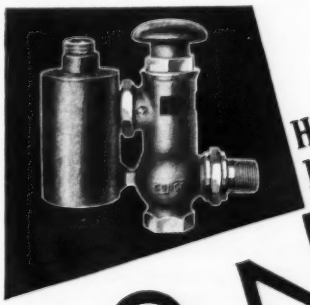
MALLEABLE IRON FITTINGS

STANDARD MALLEABLE • EXTRA-HEAVY MALLEABLE • RAILING FITTINGS • PLUGS AND BUSHINGS

COPPER TUBE FITTINGS

MALLEABLE IRON FITTINGS CO.

BRANFORD • CONNECTICUT



High Heating Costs hit a New Low *with*

CONCO VALVES

WITH the flow of steam or water to each room automatically controlled so that the exact room temperature desired is maintained, Conco Valves effect a great saving in fuel costs—as high as 30% in some instances. Operates on a variation of one or two degrees in room temperature. Installed like an ordinary radiator valve. You can install one Conco Valve—or one for every radiator. Catalog on request.

We will furnish one or more Conco Valves on 30 days' trial basis as evidence of their accuracy.

Bohn Aluminum & Brass Corporation
CAPITOL BRASS DIVISION
MANUFACTURERS OF BRASS VALVES, BOILER TRIMMINGS AND PLUMBERS' BRASS GOODS
DETROIT-MICHIGAN

What Women Are Doing

It's a Great Life If Your Endurance Is Good!

Another complete short story, from the interesting biography of the wife of one of the men in the trade who, as you will find, is doing much to promote her husband's business. This interesting story tells how this clever business woman helps in her husband's office

HOW WRONG they were, we proved more quickly than we had hoped, for desirable business, attracted by our new location, increased steadily. The increase of women callers and customers was especially noticeable. It had always been my theory that our trade had never made a sufficient play to the woman of the house. I judged other women by myself. I like to see what I am going to buy, whether it is clothing, a piece of furniture, or fresh vegetables, and if a product is displayed attractively, so much the better for the merchant. I am more likely to buy it and buy more of it than I would otherwise, and bathtubs, kitchen sinks, and heating plants are no different in this respect than other products.

In our new quarters my desk was placed downstairs, near the rear, from which strategic location I could take care of the showroom and also conveniently act as a "buffer" between the showroom and the upstairs office. Before going into business for ourselves, we had considered private offices as quite unnecessary and more or less "high hat," but experience had soon showed us how necessary they were. Everyone in the office, if not careful, could spend an entire day every day just being pleasant to salesmen and acquaintances who drifted in, and such exposure was positively fatal to the efficiency of the "boss," for as long as he was in sight they needs must talk to him. Such contacts were important and often business getters, but it was not necessary for all of us to make them. We wanted ours to become recognized as the "friendly store" but some times we had to be positively rude in order to get any work done, and during our experimental stage we spent many an evening at the office to "catch up," for it was only then that we could be sure of being undisturbed.

The new arrangement corrected that trouble. Many matters came up that need go no further than my desk. It was only I who need listen to a salesman tell of the merits of souvenir pencils as an advertising medium, who smiled the insurance salesman, who claimed a preference because he used to go to school with my husband, out the door. Others could now go on with their work. I soon learned that if a man's business was important, a few well-chosen questions would lead him to tell me about it, so that I might judge whether or not he should see any one else. If, on the other hand, it was such a secret that he would not give me even a clue, the chances were good that it was not important. Once in a while I made a mistake as in the case of a young chap who came in time after time and asked to see my husband. No amount of polite and round-about questioning could induce him to divulge who he was or what his business. Finally I came out point blank and asked him, for his persistence had aroused my curiosity, and to my consternation he turned out to be the new representative of a well-known manufacturing concern to whom we had been writing and requesting that they have their representative call. One of us was wrong! Should I have brusquely asked him who he was on his first visit, or should he not have told me and saved a lot of his own and his company's time and money. Some men do hate to talk business to a woman, though. I found that out at an early stage in the game, and more particularly do they dislike to talk our line of business, for they assume that we know very little about it, and that they will be only wasting their time in starting a conversation. I presume that that was the idea of this young man.

(To be continued)

North Hudson Auxiliary Re-Elects Officers

At a recent meeting of the North Hudson, N. J., Women's Auxiliary all the officers were re-elected for another term. They are, president, Mrs. W. T. J. Orriss; vice-president, Mrs. C. Cole; treasurer, Mrs. N. Triani; secretary, Mrs. H. Bunker, Jr.; sergeant-at-arms, Mrs. D. Thurnau. Trustees are Mrs. M. Menegaux, Mrs. F. Baker and Mrs. D. Thurnau.

The committee in charge of a card party, which was held Tuesday, January 12, at the meeting rooms in West New York, consisted of Mrs. W. Jacob, chairman, who was assisted by Mrs. C. Cole, Mrs. N. Triani, Mrs. D. Thurnau,

Mrs. W. Orriss, Mrs. H. Bunker, Jr., Mrs. C. Zimmermann, Mrs. E. Wittreich and Mrs. C. Werner.

The master plumbers' association and the auxiliary will hold a barn dance Saturday evening, February 6, in Community hall, Union City.

Chicago Group Plans "Hard Times" Party

The Women's Auxiliary to the Chicago Master Steamfitters Association held a delightful Christmas party at the December meeting. Mrs. Fred Lamb, one of the past presidents, dressed like Santa Claus and distributed gifts to all members present. There were 26 members in attendance. Bridge was played and a buffet luncheon served. A discussion during this gathering related to featuring something at each party in the future. The February party is to be a "hard times" party and all members are expected to dress accordingly.

Schenectady Auxiliary Gives Party

The Schenectady, N. Y., Women's Auxiliary held a highly successful Christmas party on December 23, with thirty-five persons present. Instead of using Mrs. DeForest's home as originally planned, the meeting was held in the men's hall, where luncheon was served. All toys received from the grab bag were given by Mrs. McConville to some poor children the following day. Mrs. C. Burch entertained on January 14.

Dayton Auxiliary Holds Regular Meeting

The Ladies Auxiliary of the Dayton Master Plumbers Association held its first meeting of the year at the association rooms, January 21. There were 17 members present and after the business session a social hour was enjoyed. The annual Christmas party was held in December, with a luncheon followed by cards. The committee in charge of the Christmas party was comprised of Mrs. Henry Blank and Mrs. R. E. Foerste.

Worcester, Mass., Auxiliary Meets

The members of the Women's Auxiliary to the Worcester, Mass., Association of Master Plumbers held a luncheon in December at Sherer's restaurant. The women voted to donate money to the Post Santa Claus fund and the Society for Prevention of Cruelty to Children, and omit the usual Christmas party for members. A regular monthly meeting was held on January 12.

Jersey City Women to Continue Card Parties

The Women's Auxiliary to the Jersey City, N. J., Master Plumbers Association recently held the last of a series of card parties for the year 1931, with a large group of master plumbers and friends in attendance. After the games refreshments were served by the hostess and chair-

Left to right: Mrs. E. F. Whitmarsh, Taunton; Mrs. James F. Murphy, New Bedford; Mrs. Thomas Friar, Fall River, and Mrs. A. H. Wordell, Fall River. Photo taken at annual convention of Massachusetts State Women's Auxiliary, held recently at Boston

PLUMBERS' SPECIALTIES

Here's a line of Plumbers' Specialties that have proven their value to contractors time and again.

If you are not already a user of HINDLEY Specialties, write us at once.

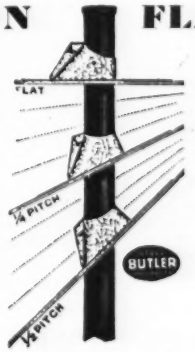
See Page 851 of Domestic Engineering Plumbing and Heating Catalog

HINDLEY MFG. CO.
VALLEY FALLS - R. I.

OVERTON FLASHINGS

Drop the Overton Flashing down over the stack and one more installation is completed.

No fussing around to make it fit tight — the Overton fits any angle roof from flat to half pitch. No



time consuming labor to assure yourself the flashing is leak-proof —put an Overton on and it is leak-proof from then on.

Write your jobber today.

BUTLER MFG. CO. Minneapolis, Minn.

NO-SOL COPPER FLOATS

4"x5" Oval Float

No-Sol Floats incorporate all features necessary to the satisfactory performance of a tank float.

5" Round Float

Each float is individually tested and guaranteed.

INCORPORATED 1907

The AYLING & REICHERT CO.

3047 N. Erie St. Toledo, Ohio

rust proof

Each nipple is protected by a coating of rust inhibitor, inside and out. Accurate, clean-cut threads. Ends chamfered and reamed.

FRICK - REID SUPPLY CORP.
NIPPLE DIVISION
117 Sandusky St. Pittsburgh, Pa.

END
Little Leaks

Poorly constructed or poorly designed air valves give no end of trouble to their owners. The little leaks that develop in such valves cut down heating efficiency, increase the need for firing and waste fuel.

Kelly Valves are guaranteed against any and all faults in design, workmanship and operation for five years. They need no adjustment and cannot be tampered with. They permanently end little leak troubles.

KELLY BRASS WORKS
226-32 W. Ontario Street CHICAGO

Order from your jobber today or write us direct.

The KAINER
PRESSURE GOVERNOR
for Hot Water Heating Systems
—Reduces the cost of a hot water layout.
—Eliminates expansion tank and fittings (with its danger of freezing and overflowing).
—Simplifies installation—makes a better job.
—Saves your time and your customers' money.
—Increases your profits and builds good will.
Write us for full information.
KAINER & COMPANY
CHICAGO
761-771 MATHER STREET
Manufacturers

man of the entertainment committee, Mrs. John T. Edge, assisted by Mrs. Komoski and Mrs. Mulholland. These social gatherings, having been voted a complete success, will probably be continued throughout this year.

On December 21 the annual Children's party, with a Christmas tree, holly, mistletoe and Santa Claus was held. The party was a success and was attended by all the members and their children.

Los Angeles Auxiliary Elects New Officers

Officers elected at the December meeting of the Ladies' Auxiliary of the Merchant Plumbers' Association of Los Angeles were installed at the January business meeting of that body.

The officers now include Mrs. Frank Brown, president; Mrs. M. L. Pellicciotti, first vice president; Mrs. Rose McArthur, second vice president; Mrs. E. J. Carroll, secretary; and Mrs. Senz, treasurer.

Business meetings of the group for the year 1932 have been scheduled every first Thursday of the month and dinner meetings will be held on the third Wednesday of every month.

Entertains Boston Auxiliary Members

Mrs. John J. Downey, West Roxbury, Mass., held a Christmas party at her home recently for the members of the Boston and Vicinity Women's Auxiliary. All the local officers, including the National president and secretary, and a goodly number of members, were present. During the brief business meeting it was voted to donate to the unemployment fund. The auxiliary is attempting no fixed program of activities this year, as all the members are actively engaged in various forms of social service work.

The men took part in welcoming Santa Claus, realistically impersonated by Mr. James A. Cotter, who distributed a gift from the tree to each person present. A large Christmas cake was cut by Mrs. J. Preston Perham, National Auxiliary president.

South Side Auxiliary Holds January Meeting

The South Side Women's Auxiliary of Chicago held its January meeting on the seventh at Parker's cafe, with 26 members and 3 guests present. The report on the card party held at Mrs. O. Larson's home showed it was highly successful. A report from the treasurer showed the auxiliary to be in good financial standing. It was voted to send the president, Mrs. F. W. Hagar, to the state convention.

On December 2 the auxiliary held its usual monthly meeting at the Broadview hotel, with 27 in attendance. A delicious luncheon was served. The club donated $15 for charity at the holiday season and turned same over to Mrs. Flavin, social chairman, who prepared six baskets of food for the needy. Cards were enjoyed following the business meeting, with Mrs. Delchant, Mrs. Flavin, Mrs. Hazard and Mrs. Taffe as hostesses.

Auxiliary in Kansas City Gives Christmas Party

On Tuesday, December 29, the Women's Auxiliary to the Master Plumbers Association of Kansas City, Mo., held a Christmas party at the home of Mr. and Mrs. Ervin Spaeth. Mrs. Spaeth is president of the auxiliary. About 35 were present, among them being Mrs. E. D. Hornbrook, past president of the National Women's Auxiliary. Mrs. I. E. Henderson, president of the Missouri State Women's Auxiliary, as well as present and former officers of the master plumbers association were also in attendance. Various Christmas games were played and delicious refreshments were served. Paul and James Spaeth, sons of the host and hostess, entertained with piano and violin solos and duets.

Bath a Day Movement

177

In one hundred and seventy-seven cities and towns in the United States of which we know—there are others, of course, of which we have not been advised—"The Story of the Bath" has been distributed in the schools and used as classroom reading in the science of health.

IN A number of other cities and towns, alert members of Kiwanis, Rotary and other service clubs from among the plumbing fraternity have used "The Story of the Bath" in connection with the Twenty-Minute Program which "Domestic Engineering" prepared in response to a number of requests for such material.

If you are a member of one of these service clubs, and have been asked to provide a program, write for the program and a copy of "The Story of the Bath." They will cost you nothing.

Little Sentences That Sell

Write one of these BLACKBOARD EPIGRAMS on your window or bulletin board each day. Many master plumbers and heating contractors find them real business getters.

Friends on an airship voyage should never fall out.

* * *

Economy supplies old age with an easy chair.

* * *

The bowlegged man has an open gate of his own.

* * *

A lie seldom dies of inactivity.

* * *

Some men seem to go through life on a bluff.

* * *

Fortune telling is always fortunate for the fortune teller.

* * *

A traveling man's coat and trunk are alike when checked.

* * *

Some men are in touch with their neighbors for all they will stand.

* * *

When a friend in need drops in the average man gets cold feet.

* * *

There is a great deal of cold comfort in a handkerchief.

* * *

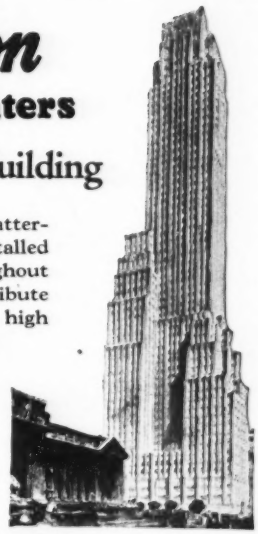
Experience is like a light hung at the stern of a ship.

. . . and there are three

Patterson

Hot Water Heaters

in 500 Fifth Ave. Building



The frequency with which Patterson Hot Water Heaters are installed in important buildings throughout the country is the highest tribute that could be paid to their high quality and dependable service.

A great responsibility rests on the men who select equipment for such important buildings as the one here shown. They cannot afford to take chances.

Patterson Heaters have proved their worth in so many thousands of buildings that you are absolutely safe in specifying the "Patterson." We stand back of them to the limit.

500 Fifth Ave. Bldg., New York, N. Y.
Shreve, Lamb & Harmon, Architects
G. T. Wills, Inc., Builders
Alexander Bryant Co., Plumbing Contractors

Ask for our catalog.

THE PATTERSON-KELLEY CO.
106 East 40th Street :: NEW YORK, N. Y.

Have You Any Used Tools?

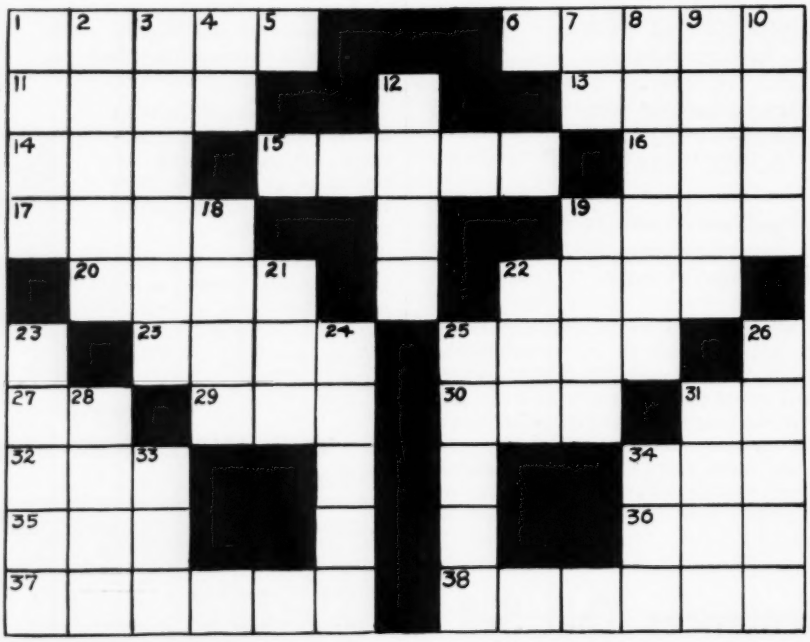
No doubt you have. Chances are they are laying somewhere around your shop. Possibly new tools have replaced the old. These old tools will bring you *dollars* if advertised in the For Sale columns of DOMESTIC ENGINEERING. Some plumber in some other locality may be waiting to obtain these tools, in good condition, at reduced prices. The very low rate of 8 cents per word makes the Classified Page a good buy.

Domestic Engineering
1900 Prairie Ave. CHICAGO

Pipe —— Lines

Connected by LyT

A Plumbing Crossword Puzzle



From J. Louis Holloway, of Washington, Kans., comes the above crossword puzzle in which will be found a number of words having to do with the art of plumbing. It is an ingenious effort, and we invite all readers of "Pipe Lines" to participate in its solution, which we will publish in a later issue. Send your entry in early. First prize will be a Jumbo ice cream cone. We will ship it with all charges paid.

Horizontal

1. Article for binding plumbing kits.
6. Plumbing fixture. (pl.).
11. That which most plumbers forget.
13. Common term for drain pipe.
14. Punch.
15. Tool for boring metal.
16. Anger.
17. Band for transmitting power in machinery.
19. Smoke stack.
20. Substance used in calking joints.
22. Notices.
23. Obliterate.
25. Locate.
27. Concerning.
29. Pipe fitting.
30. Equivalence.
31. Proceed.
32. Nipple. (abbr.).
34. The fold of metal.
35. Several hundred years before plumbing became a trade.
36. Consumed.
37. He who grants the temporary use of his tools.
38. Scorches.

Vertical

1. Common term for fitting gas pipe to the main line.
2. An article the most used in the bath room.
3. Casters.
4. Plumbers' nick name.
7. Since.
8. Plumbing Fixture.
9. Employs.
10. Killed.
12. Tube for conveying fluids.
18. Stretched tight.
19. Terror.
21. Device for cutting threads.
22. Ocean.
23. A new kind of metal.
24. At no time.
25. Brass connections in toilet bowls.
26. Twisted fibers.
28. Flame.
31. Certain kind of valve.
33. Vessel.
34. To move slowly.

HOW TO PAY YOUR BILLS

A wholesale house had a slow account and finally wrote a rather "hot" letter. The reply received read as follows:

"What do you mean by writing me such a letter? I know how to run my business. Every month I place my bills in a basket and figure how much I can pay on my account; then I blindfold my stenographer as she draws the bills from the basket until that amount is used up. If you don't like the way I'm doing, in the future, I won't even put your bill in the basket."

THE CUSTOMER IS ALWAYS RIGHT?

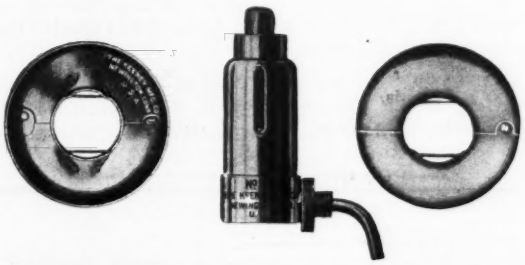
Prison Warden: "You say you have a complaint to make? Well, what is it?"

Convict No. 9875423: "There ain't enough exits, sir."

In her school essay on "Parents," a little girl wrote: "We get our parents at so late an age that it is impossible to change their habits."—Boston Transcript.

L Y T

MANUFACTURERS AND WHOLESALERS:
Write for our NEW CATALOG—just off the press



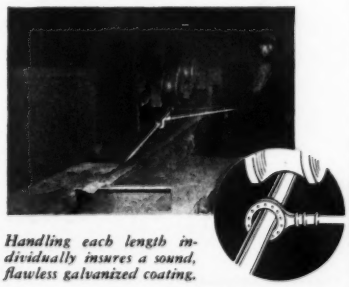
Our NEW CATALOG will be of extreme interest to you for in it you will find described in detail, our entire line. Of utmost importance at the present time is the No. 100 Syphon Radiator Valve shown above. Among the features of this valve are the lock nut, which holds the valve in an upright position at all times. It cannot be tipped on its side. The valve is also equipped with an asbestos packing in cap that absorbs the vapor, creating a dead silence.

Also, you will find information on KEENEY FLOOR and CEILING PLATES, with their bright and shiny exteriors, which make an immediate hit with your customers. They are made with extreme care and are copper plated before nickel finish is put on.

THE KEENEY MFG. CO.
NEWINGTON, CONN.

KEENEY

Galvanizing IS IMPORTANT



Handling each length individually insures a sound, flawless galvanized coating.

All excess zinc is removed as the pipe is passed through ring.

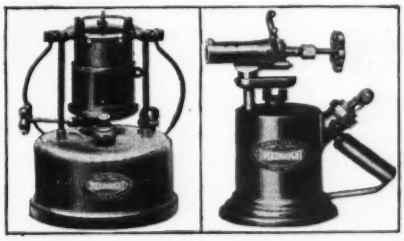
THAT is why Fretz-Moon employs its own exclusive process of hot galvanizing. The method used is so advanced, accurate and closely controlled that the zinc coating on Fretz-Moon Pipe affords maximum resistance to rust and corrosion. The zinc coating will not scale, chip or flake off, even under severe bending—it is actually integral with the steel pipe. For pipe that is perfect inside and out, use Fretz-Moon.

FRETZ-MOON PIPE
BLACK AND GALVANIZED

FRETZ-MOON TUBE CO., INC.
BUTLER, PA.

A NEW LINE.. of WALL products at a NEW LOW PRICE

Write for complete information. Ask for our plumbers' circular.



THOUGH lower in price than ever before, each is a newly developed WALL product designed to serve best your most particular needs, without the sacrifice of typical WALL quality features! It will pay you to get in touch with your jobber at once—or for jobbers to get in touch with us.

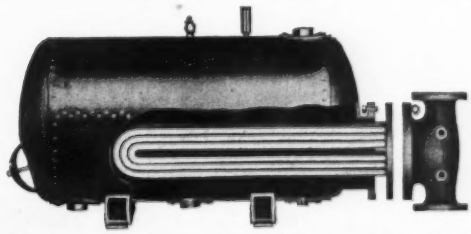
P. Wall Mfg. Supply Company · Pittsburgh, Pa.

SINCE WALL SUPERIOR PRODUCTS 1864

DREADNAUGHT
"Service with Safety"
BLOW TORCHES . . . FURNACES AND OILERS

NATIONAL Red Head STORAGE HEATERS

For Industrial Plants, Laundries, Apartments, Schools, Clubs, Hotels, etc.



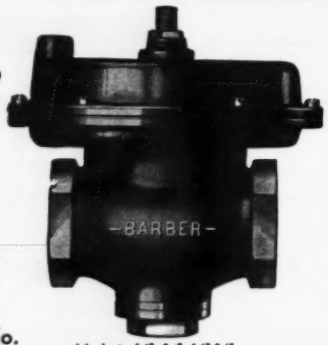
A well built heater, economical in operation, equipped with U-Bend heating element of Anaconda Copper, Steel Tank. Improved flanged T cover gives unrestricted flow area for entering steam. Tested to 100 lb. working pressure, 150 lb. hydrostatic pressure. Just consult the chart in Bulletin 61. We do the engineering. Write for Bulletin 61 and prices. Immediate delivery.

Makers of Heat Exchangers, Coolers, Oil Separators, Coils and Bends

THE NATIONAL PIPE BENDING CO.
Est. 1883
174-B River St., New Haven, Conn.
BOSTON NEW YORK PHILADELPHIA

SAVE
on gas bills!

That's what everyone of your customers is trying to do—get gas bills down as low as possible. With a BARBER Gas Pressure Regulator on any gas appliance, gas bills will be much lower. Show one to your customers, take the orders and the profit. Write for details.



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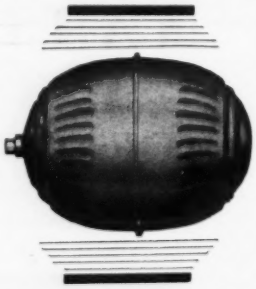

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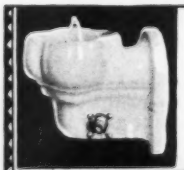

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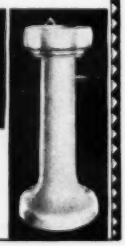

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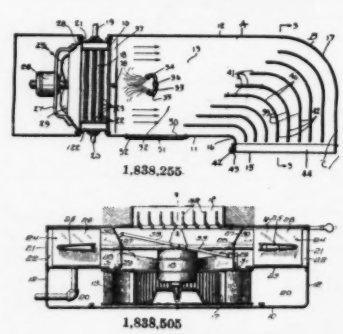
1,838,255. Air Conditioning Apparatus. Daniel Handelan, Minneapolis, Minn.

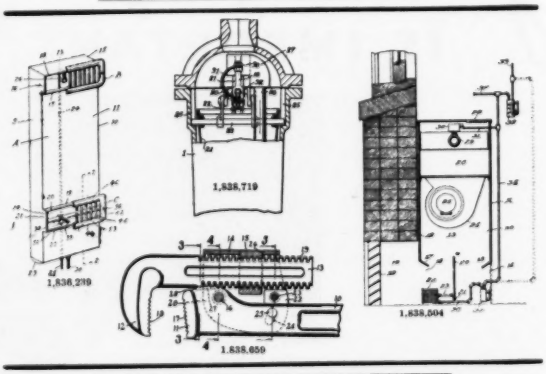
1,838,505. Heating and Ventilating Unit. Wilfred Shurtleff, Moline, Ill., assignor to The Herman Nelson Corporation, Moline, Ill., a corporation of Illinois.



1,836,271. Heat Exchange Unit. Arthur B. Modine, Racine, Wis., assignor to Modine Manufacturing Company, Racine, Wis., a corporation of Wisconsin.

1,836,239. Humidifying Device. Edward A. Grapp, Minneapolis, Minn.

1,838,719. Steam Trap. Albert R. Thoke and William H. Francis, Pittsburgh, Pa.



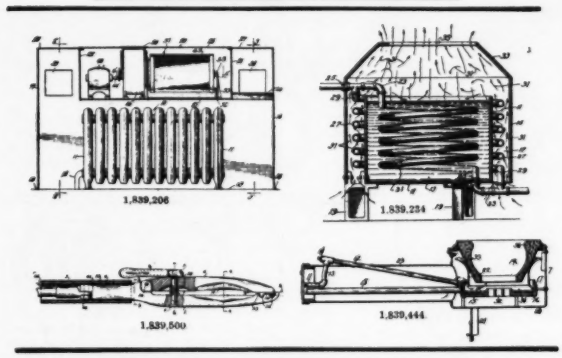
1,838,659. Pipe Wrench. Fred J. Clemens, East Haven, Conn., assignor to The William Schollhorn Company, New Haven, Conn.

1,838,504. Heating and Ventilating System. Wilfred Shurtleff, Moline, Ill., assignor to The Herman Nelson Corporation, Moline, Ill., a corporation of Illinois.

1,839,206. Air Humidifier. George D. Doherty, Minneapolis, Minn., assignor to Doherty-Brehm Company, Minneapolis, Minn., a Corporation of Delaware.

1,839,234. Humidifier. Charles J. Lehn, Oak Park, Ill.

1,839,444. Vapor Burner. Ralston M. Sherman, Glastonbury, Conn., assignor to The Silent Glow Oil Burner Corporation, Hartford, Conn., a Corporation of Connecticut.

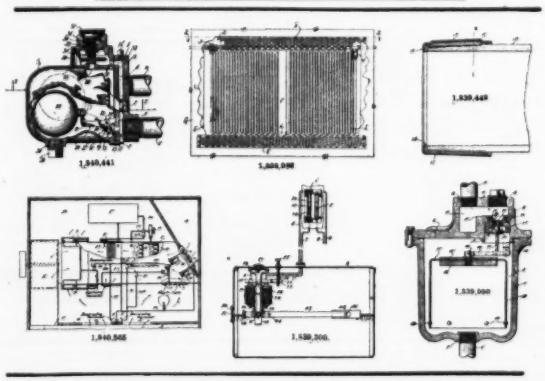


1,839,500. Welding Apparatus. Herbert O. Rich, Revere, Mass.

1,840,441. Drip Trap. Valentine Fina, Milwaukee, Wis., assignor to Milwaukee Valve Company, Milwaukee, Wis., a Corporation of Wisconsin.

1,839,986. Wall Radiator. Horace S. Meldahl, New York, N. Y.

1,839,448. Pipe Thread Protector. Richard Stresau, Wauwatosa, Wis., assignor to A. O. Smith Corporation, Milwaukee, Wis., a Corporation of New York.



1,840,565. Method of and Apparatus for Controlling Temperature and Humidity. Alfred C. Buensod, New York, N. Y., assignor, by mesne assignments, to Auditorium Ventilating Corporation, Jersey City, N. J., a Corporation of New Jersey.

1,839,300. Liquid Level Indicator. Clarence A. de Giers, New York, N. Y., assignor, by mesne assignments, to The Liquidometer Corporation, Wilmington, Del., a Corporation of Delaware.

1,839,999. Steam Trap. Leslie P. Strong, Lakewood, Ohio, assignor to The Clark Manufacturing Company, Cleveland, Ohio, a Corporation of Ohio.

Plumbing Department

1,838,198. Plumbing Fixture. William E. Sloan, River Forest, Ill.

1,838,474. Sewage Treatment. Arthur M. Buswell and Sidney L. Neave, Urbana, Ill., assignors to Board of Trustees of the University of Illinois, Urbana, Ill., a corporation of Illinois.

1,838,475. Sewage Treatment. Arthur M. Buswell, Urbana, Ill., assignor to Board of Trustees of the University of Illinois, Urbana, Ill., a corporation of Illinois.

1,838,092. Roof Drain. John C. Cromwell, Alliance, Ohio, assignor to The Testite Company, Columbus, Ohio, a corporation of Ohio.

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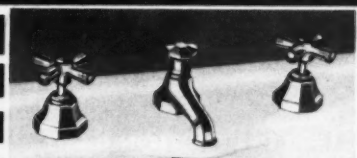

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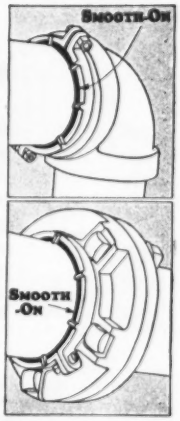

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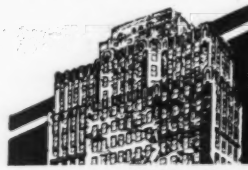
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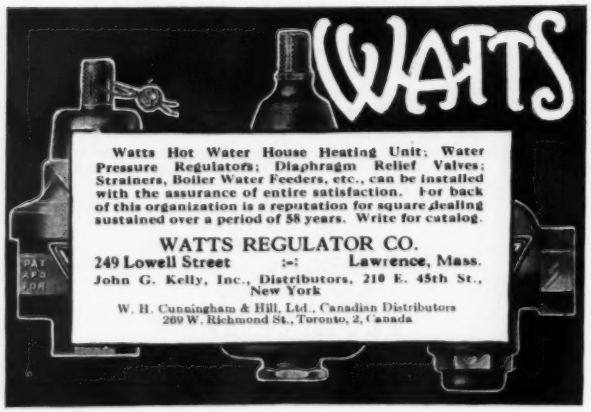
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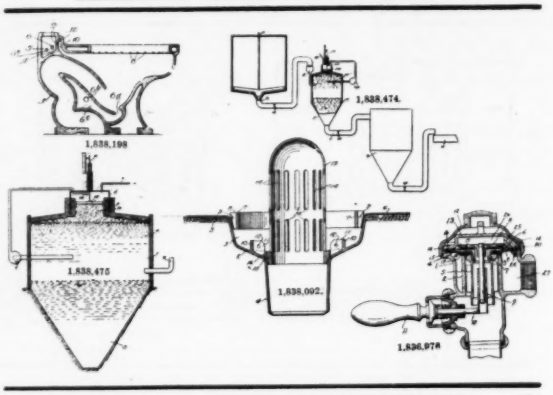
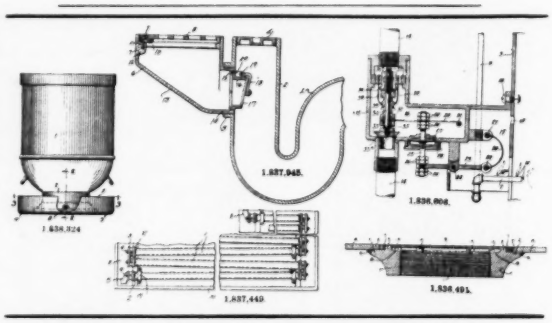


1,836,976. Diaphragm for Flush Valves. Carl H. Krause, Chicago, Ill., assignor to Sloan Valve Company, Chicago, Ill., a corporation of Illinois.

1,838,324. Drinking Fountain. Wayne E. Olson, Junction City, Kans.

1,837,945. Floor Drain. Edward W. N. Boosey, Detroit, Mich.

1,836,606. Gas Fired Heater. Edward Lapp, Edward A. Krah, Jr., and Albert Wolpert, Pittsburgh, Pa., assignors to Pittsburg Water Heater Company, Pittsburgh.



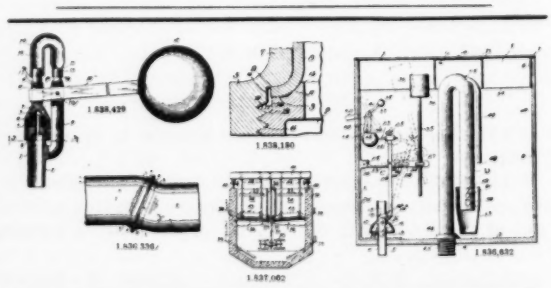
1,837,449. Solar Heater. Carl F. Kunz, Phoenix, Ariz.

1,836,491. Drain Connection. Edward F. Niedecken, Milwaukee, Wis., and Walter I. Jones, Joliet, Ill.

1,838,429. Valve for Flush Tanks. James Melio, Chicago, Ill.

1,838,180. Pipe Coupling. Otto G. Hitchcock, Erie, Pa., assignor to Hays Manufacturing Co., Erie, Pa., a corporation of Pennsylvania.

1,836,336. Pipe Joint. Daniel Benson Replogle, Berkeley, Calif.



1,837,002. Sewage Disposal Apparatus. Philip S. Wickerham, Butler, Pa.

1,836,632. Silent Flushing Apparatus. Daniel F. Tracey, Huntington, W. Va.

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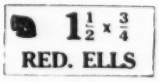

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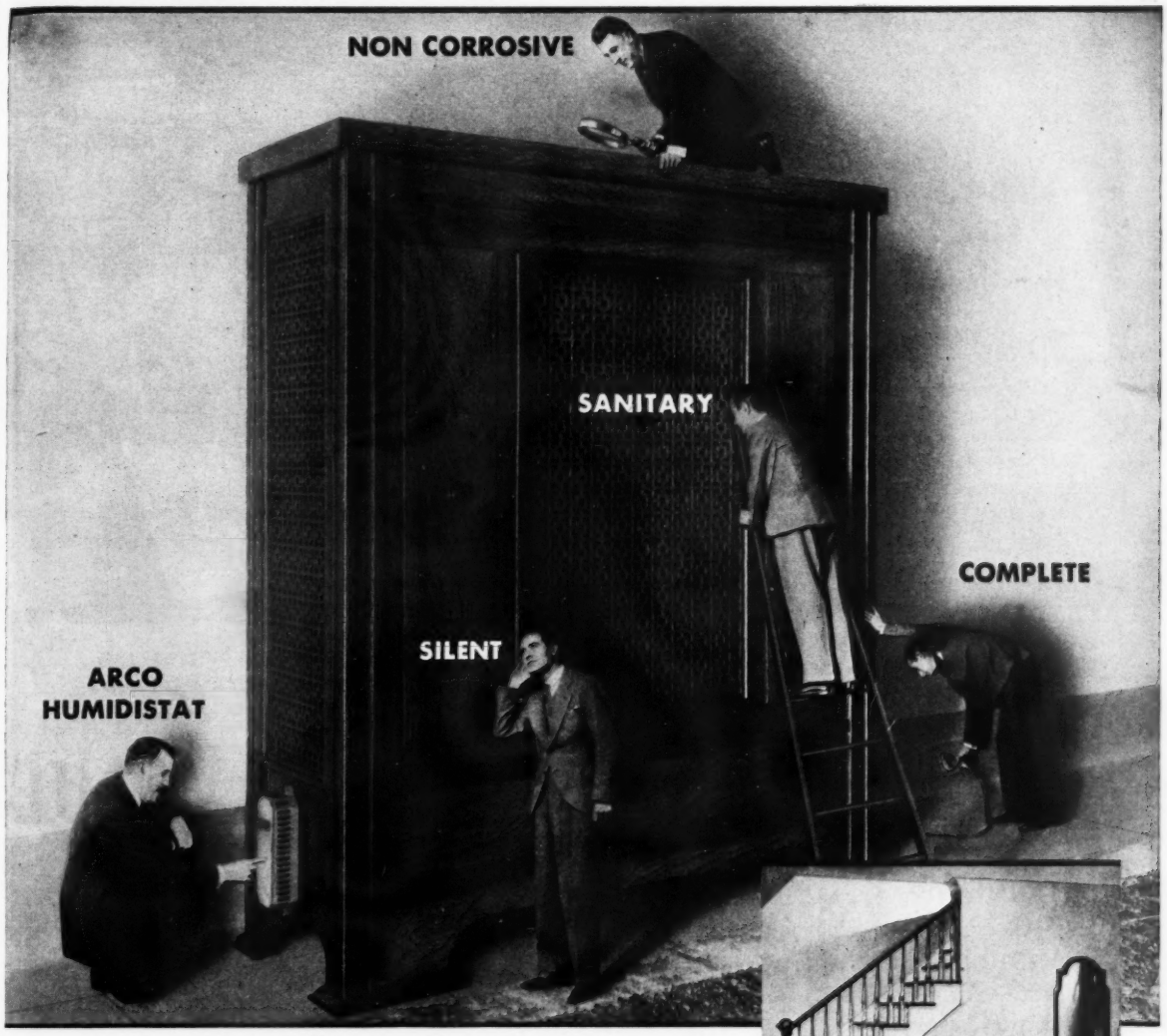

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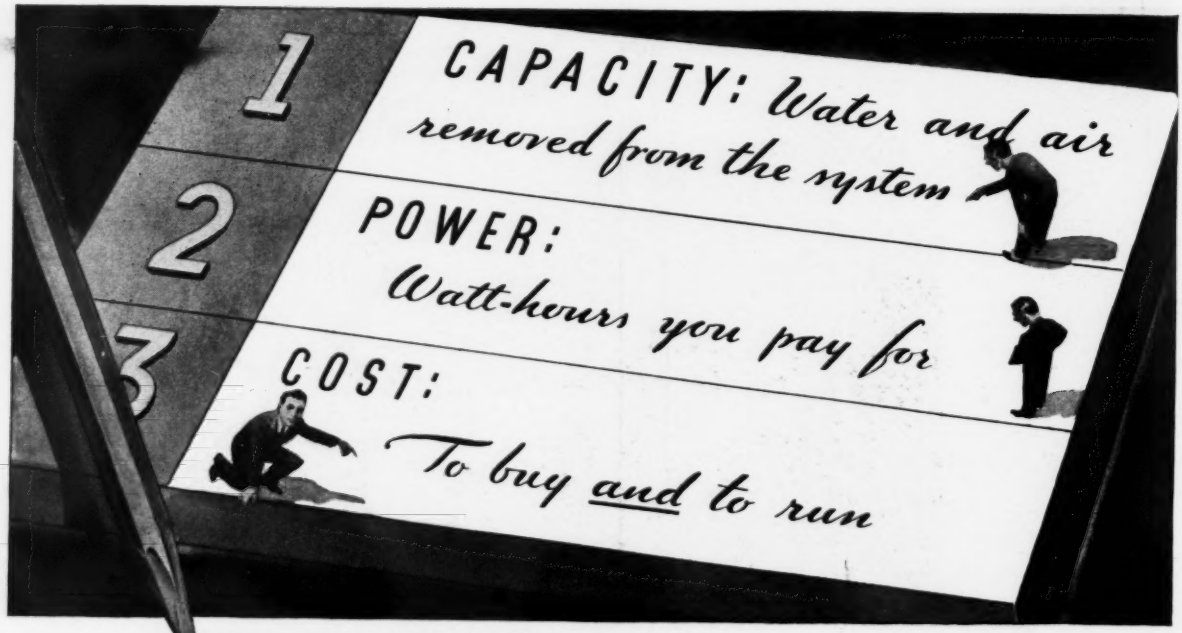

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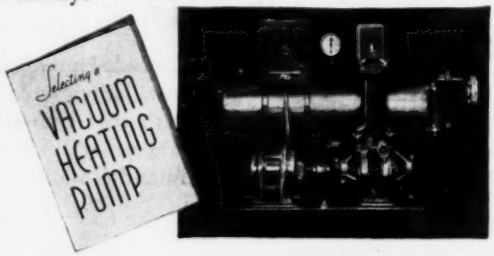

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